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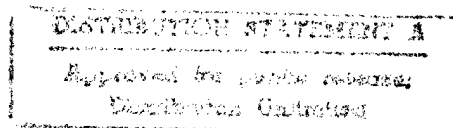
10 January 1983

East Europe Report

ECONOMIC AND INDUSTRIAL AFFAIRS

No. 2356

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INTERNATIONAL AFFAIRS

GREATER CEMA PRODUCTION COOPERATION URGED

[Editorial Report] AU171304--Bratislava PRAVDA in Slovak on 16 December 1982 carries on page 6 a 1,400-word article by Nikolaj Siomin, candidate of economic sciences, entitled "effectiveness of cooperation; in the interests of fulfilling topical as well as strategic tasks."

Siomin elaborates on the liquidation of parallel production in the CEMA states by increasing production intensification and reducing ineffective production, in which consumption is covered by imports from other socialist states; he cites examples of Bulgaria stopping the production of hydraulic turbines and certain machine tools; of Hungary stopping the production of excavators, the GDR stopping production of tugs and self-propelling under-carriages, Poland bulldozers and silage combines, and the CSSR several kinds of mining equipment.

Siomin then cites the development of other production on the basis of an intersectoral division of labor, such as exists in Hungary, which covers the entire needs of the GDR for buses for city and city environs transportation and delivers to the GDR trailer attachments to E-512 and E-516 combines in return for GDR combines; likewise, within the framework of cooperating in the production of apparatuses and precision-engineering products, the GDR produces photogrammetric and astronomical apparatuses and Hungary cash registers. Siomin also cites cooperation between Bulgaria and the CSSR and between Romania and the GDR.

He then deals with multilateral cooperation in producing equipment for nuclear power stations, citing the example of the Paks situation in Hungary, for which the CSSR supplies the reactors, and Bulgaria the facilities for biological protection.

In the multilateral cooperation in computer technology, Siomin says, Cuba "specializes in alphabetical-numerical and graphic displays" and collaborates in design and construction work. Both Vietnam and Cuba, Siomin adds, will "participate in realizing the multilateral general agreement on the development and broad utilization of microprocessor technology."

Siomin then deals with cooperation in other branches of the economy and says that "in 1981 trade between the CEMA countries (excluding the USSR)

increased approximately 11 percent, compared with the preceding year," but that "the reserves in this sphere are still large."

Pointing out the "great significance of integration cooperation for balancing the CEMA countries' economic advance," Siomin refers to the assistance of European CEMA states to Mongolia, Vietnam and Cuba.

"The significance of economic relations between the fraternal states is extremely important in extreme situations," Siomin then states and cites the CEMA states' aid to Poland's economy, expressed in various bilateral agreements.

Siomin concludes by saying: "The cooperation of the fraternal states on many levels supports the solution not only of topical tasks, but also of strategic ones, on the basis of the close economic relations of these states."

CSO: 2400/98

HUNGARIAN - USSR ECONOMIC, SCIENTIFIC-TECHNICAL COOPERATION DESCRIBED

Budapest SZAKSZERVEZETI SZEMLE in Hungarian No 5, 1982 pp 3-10

[Article by Jozsef Benko, secretary of the Hungarian-Soviet Economic and Scientific-Technical Cooperation Inter-Government Committee: "Concerning Hungarian-Soviet Economic and Scientific-Technical Cooperation"]

[Text] The historic victory won by the Soviet Union in World War II meant the beginning of a new age for Hungary. Thirty seven years ago the people could take in their hands the power, guidance of the economy and the development of our political and economic contacts. In the very year the war ended, on 27 August 1945, we signed an economic cooperation agreement with the Soviet Union. Three years later, the Treaty of Friendship, Cooperation and Mutual Aid signed on 18 February 1948 laid the foundations for a fundamentally new economic orientation of our homeland. Beginning at this time the development of the economic links to the Soviet Union became the most important factor in the unfolding of Hungarian popular democracy and the building of a socialist Hungary.

The economic development of our homeland came into close interdependence with the growth of Hungarian-Soviet economic contacts. The role of the Soviet Union in the development of the Hungarian economy increased constantly and at a quick pace; the Soviet Union soon became our largest and most important economic partner. For nearly a quarter century already, we have conducted one third of all our foreign trade with the Soviet Union. The value of our export to the Soviet Union makes up 15-17 percent of our national income.

The people's democratic countries and the Soviet Union formed the Council for Mutual Economic Assistance on 25 January 1949 with the task of exchanging economic experiences and aiding each other with raw material, foodstuffs, machines, equipment, etc.

CEMA effectively aided the cooperation of Hungary and the Soviet Union, and the entire socialist community, and opened new vistas for exploitation of the advantages of the socialist economic system.

The broad scientific-technical and economic cooperation with the Soviet Union and the socialist countries, affecting every area of our economy, has played a

determining role in the past three and a half decades. It was within this framework that the conditions developed which made possible the restoration of the gigantic damage of war in a very brief time, the substantial structural transformation of the Hungarian economy on the basis of planned management (the swift development of industry, agriculture, services, etc.), a fundamental change in the living conditions of the entire Hungarian people and raising the standard of living to a degree never before experienced.

From the Liberation to the Beginning of the 1970's

Looking back on the time since our liberation we can outline two main phases in our cooperation thus far. The first phase stretches from the development of socialist integration to the beginning of the 1970's, the second from the beginning of the 1970's to our day, indeed it stretches a few years further. The third phase is beginning to appear also; we can recognize its chief characteristics already, but a stronger realization of it can be expected in the second half of the 1980's. It is worth examining (primarily for purposes of orientation and not as a scientific approach) what chief criteria were characteristic of the chief phases of our cooperation.

For a quarter century we were able to ensure, practically without limit and at a rate and to a degree required by the development at the time, from the Soviet Union and the socialist countries the necessary raw materials, energy and fuels, technology and technological equipment. This was made possible also by the fact that in this period our partners had an ample supply of the materials we lacked--iron ore, coke, crude oil, wood, chemicals, production equipment, machines, etc. At the same time, the Soviet Union and the socialist countries were virtually unlimited customer markets for all those products which the Hungarian economy was able to produce in this period. It can be said of this quarter century that--based on the natural and geographic conditions of countries cooperating on an internationalist basis--a high degree of socialist division of labor came into being between our economies, thus aiding the continual development of the economies of the cooperating partners.

In these years our trade with the Soviet Union increased by 10-15 percent per year, and the rate of growth of the Hungarian economy was high. It is obvious that many other factors also influenced the high developmental pace of the economy, but the preeminent role of Hungarian-Soviet contacts can be established unambiguously. The results of them contributed to a crucial degree to the swift development of the Hungarian economy. The specialization which developed between our economies, well supplementing each other's economy, was useful to both sides; it aided the successful realization of the economic policy goals we had set. In this phase of cooperation, especially in the initial years of it and in the years after the 1956 counter-revolution, the many-sided aid offered by the Soviet Union was of very great significance in getting our economy on its feet also.

By the beginning of the 1970's we had an annual trade exceeding 2 billion rubles. To appreciate this ratio it must be noted that at that time the price of a ton

of crude oil was around 16 rubles and the price of an Ikarus autobus was 20,000 rubles. This significant magnitude of trade was made possible by bilateral and multilateral cooperation agreements of the most varied kinds in regard to manufacturing specialization, cooperation, scientific-technical development, etc. By this time we had largely developed those integration facilities--oil and gas pipelines, linking electric systems, rail reloading capacity--which created the possibility for conducting trade. A generally operating Hungarian-Soviet economic and technical-scientific cooperation inter-government committee came into being at the beginning of 1964, to provide a more organized and swifter solution of questions arising from economic cooperation between the two countries and to put effectively into practice the basic principles adopted by CEMA ("Basic Principles for the Socialist Division of Labor"). It has played a significant role in the development of our economic contacts since then also.

Hungarian-Soviet economic cooperation in this period contributed to a crucial degree to the industrialization of our homeland, to the country changing from an agricultural-industrial country into a industrial-agricultural one, to the socialization of agriculture, to the constant development of industry, to the reconstruction of industry, to the development of various branches of science and to the constant modernization of our production structure. The possibility of relatively problem-free acquisition of the raw materials, fuels and other products necessary of us and the highly reliable marketing possibilities for products manufactured by us also resulted in a certain conditioning or becoming accustomed to habits in our contacts and in an insensitivity to or antipathy toward new problems. Despite the great results achieved in this period of cooperation there also came into being those factors and problems which, together with a number of other causes, initiated fundamental changes in our economic contacts with the socialist countries, and thus with the Soviet Union also, at a time of great re-ordering in the economic value system, which began in the early 1970's.

Our economic policy goals, posted in both 5-year plans of the 1970's, represented a straight continuation of the Hungarian economic policy developed by the end of the 1960's. Strong balanced economic growth, even progress in building a developed socialist society, constantly raising the standard of living of the populace--these were our fundamental economic policy goals. Nor was there a change in our planning and guidance system; at most we could speak of a constant perfection of it, of adjusting to changing conditions. When posting these goals and developing our plans we counted on the continuity of the situation and ratios which had developed in our foreign economic contacts.

Naturally, the chief direction of our foreign economic orientation remained cooperation to be conducted with the socialist countries, primarily with the Soviet Union. The production structure developed in our economy in the preceding period made the Soviet Union irreplaceable not only from the viewpoint of our fuel and raw material supply but also from the viewpoint of selling our products.

Internal and external factors influencing the development of our economy appeared ever more strongly in the period of the Fourth 5-Year Plan, in the first half of the 1970's. Adjusting the functioning of the economy to the requirements for intensive development proceeded only very slowly--primarily because of the shortage of investment assets. The steps taken to develop socialist integration--joint investments, various cooperation agreements, etc.--did not yet bring results, or did so to only a minor degree.

In the 1970's and Today

The large scale price changes for fuels and raw materials which took place in 1973 can be considered the starting point for fundamental changes. The change in terms of trade in our free exchange trade meant very significant, immediate losses for us; all the more so since we could raise the price level of our export products to only a very small degree. In the second half of the plan period the effect of the price explosion played a great role in the relatively high rate of growth in trade with the capitalist countries. Beginning at this time, the credit policy aimed primarily at aiding our technical development was largely unable to realize its original purposes, since we had to counter the effects of price increases with credits we were increasingly forced to assume.

In these years also economic contacts with the Soviet Union developed dynamically, the general annual rate of growth of trade was 16.5 percent; this exceeds the rate of growth of our foreign trade as a whole. In the first 4 years of the plan period we generally fulfilled according to plan the proportional prescriptions of the long-term trade agreement for the 5 years. Our imports from the Soviet Union increased more than two times in the 5 years. In 1975, four fifths of all Hungarian raw material and fuel imports and about one third of the imported machines came from the Soviet Union. Between 1971 and 1975, 28 million tons of petroleum flowed into our homeland via the Friendship I and Friendship II pipelines; this is 70 percent of the total processed and more than 90 percent of the petroleum purchased from import. The electric power imported during the 5 years took the place of a power plant of nearly 1,100 megawatt capacity, in which we would have had to burn about 7 million tons of coal to produce this amount of electric power. We also imported the largest part of the most important primary or raw materials from the Soviet Union--96 percent of the iron ore, 85 percent of the phosphorus, 70 percent of the cotton, 77 percent of the pine lumber and 40 percent of our cellulose needs. We provided about 50 percent of the primary materials for our chemical industry from the Soviet Union. In these years various types of machines and equipment made up more than 30 percent of our total Soviet import, providing the material foundation for several developmental tasks of significant magnitude in the plan period (machines for reconstruction of the textile industry, a large capacity petroleum processing plant, etc.). The share of the Soviet Union in our total import was around 34 percent, with minor variations.

Our export to the Soviet Union increased more than two times during the 5 years, exceeding the increase in our total export. In this period the Soviet Union

was the chief customer market for Hungarian industrial products. One half of Hungarian machine export was directed there, including, for example, 70 percent of the autobus export and 90 percent of the ship and floating crane export. Light industry and foodstuffs industry products were very popular goods in our export on the Soviet market. They were happy to buy Hungarian ready made clothing, shoes and furniture. Nearly half of our light industry export went to the Soviet Union. The importance of our agricultural and foodstuffs industry export increased within Soviet export. Various medicines made up a significant factor in our export to the Soviet Union. In sum it can be said that the commodity structure of our export to the Soviet Union developed in a favorable direction, increasingly corresponding to the structure and developmental level of our economy and of our industry therein.

The effect of the price explosion appeared in Hungarian-Soviet trade for the first time in 1975. As a result of the price increases the value of imports leaped up and that of exports increased to a smaller degree. Due to the increase in internal consumption and large scale, unfavorable changes in extraction and transportation problems the Soviet Union decreased, in 1975, deliveries of some raw materials important to us as compared to the prescribed quantities.

The value of mutual deliveries agreed upon for the years 1976-1980--calculated at current prices--increased about 1.5 times during the 5 years. But the rate of annual increase decreased substantially as compared to previous years; it reached an annual average of 10 percent, and about half of this was due to price increases. It was at this time that we met for the first time with the problem that we could no longer satisfy from the Soviet Union, in a way similar to earlier practice, our raw material needs to the degree required by the rate of development of the economy planned by us.

The rate of growth in trade derived primarily from changes in the structure of Soviet export. Soviet foreign trade also was trying to increase the efficiency of its export. It wanted to achieve this goal primarily by increasing the export of machine industry products, but the modest increase in the offering of machine industry products and the significant deviation of variety from the needs of the given period did not make it possible for them to adequately compensate, with machine deliveries, for the decrease in the raw material product group. It presented a problem, for example, that there was not a sufficient commodity base of suitable machines needed by us--for example, construction and road building machines. Often our technical requirements did not correspond to the technical characteristics of the products being offered. Industrial style agriculture, for example, required tractors and combines of substantially greater capacity than those manufactured by Soviet industry in this period.

On the other hand, it was extraordinarily favorable for the Hungarian economy that the import of fuels increased more quickly than the average. Import increased by about 76 percent--measured in calories--in the 5 years. The share of the Soviet Union's fuel deliveries in total Hungarian energy consumption thus increased from 34 percent in 1975 to 48 percent in 1980. As a result of

this our petroleum import increased from 6.5 million tons in 1975 to 8.5 million tons in 1980; petroleum products increased from 0.65 million tons to 2.5 million tons, natural gas from 0.6 billion cubic meters to 3.8 billion cubic meters and the import of electric power from 4.2 billion kilowatt hours to 7.5 billion kilowatt hours. We imported from the Soviet Union nearly 100 percent of the iron ore, 68 percent of the ferromanganese, 78 percent of the ferrosilicon, 100 percent of the asbestos and 28 percent of the electric power, as compared to our needs. It is a fact, however, that the increment in deliveries of an energetics and raw material character was provided almost entirely by special agreements.

In this plan period also the Soviet Union contributed to a crucial degree to supplying our economy with energy, fuels and raw and primary materials. By delivering complete equipment and other machines of an investment character it participated in providing the machines for our investments and by delivering durable consumer goods it participated in satisfying the needs of the populace.

Machine export continued to occupy a leading position in our export to the Soviet Union. We sold almost 45 percent of our machine industry export in the Soviet Union, which also meant that the structure of our export influenced to a great degree the production of our machine industry. The volume of export and its continuity over a long time made possible the stressed development of a number of machine industry sub-branches, for example that of the highway vehicle industry, signal technology, the instrument industry and computer technology. But a tendency, noted even earlier, for the dynamic of our machine export to decrease merits special attention; in the last years of the plan period it reached only a few percent. The Soviet Union absorbed 40-50 percent of our light industry export, and it played a fundamental role in supplying light industry with raw materials (cotton, cellulose, round timber and pine lumber).

Accommodating to Soviet needs placed an increase in the export of agricultural and food industry products in the foreground. In this period 25-30 percent of all our agricultural and food industry export was directed to the Soviet market. By 1980, for example, our apply deliveries reached 300,000 tons per year.

By the middle of the plan period it had become obvious that the effect of the changed external economic conditions was affecting our economy much more profoundly than could have been foreseen at the start of the 5 year plan. In the capitalist relationship prices continued to increase, primarily for products purchased by us and not exported, so that the terms of trade continued to deteriorate. Naturally this brought with it a further deterioration in the terms of trade in the socialist relationship also, because prices increased primarily for the raw materials and fuels being purchased by us in large quantities, a price increase for which we could not compensate by increasing the prices for products being delivered by us. The magnitude of the deterioration in terms of trade in ruble accounting trade was no less serious for our economy since we covered from Soviet imports a larger part of our fuel and raw material needs. It eased the problem that the CEMA member countries agreed on a new price principle which spread over a 5 year period the effect of the world market prices which had developed explosively. Thus, since 1975, we have been paying a price which increases each year for a larger part of the products being purchased by us, until they come into equilibrium with world market prices.

Settling our deficits due to the change in terms of trade consumed a significant part of the assets prescribed for the development of the economy. The deterioration in foreign trade terms of trade had and still has a very great effect on our management. Every deterioration of one percent reduces national income by 0.5 percent. For example, in the years 1973-1978 the terms of trade deteriorated by an average of about 20 percent, that is, we had to deliver 120 units of goods for every 100 units of import; the value of Hungarian production on the world market was devalued by this amount as compared to earlier practice. Unfortunately, the Hungarian economy was far from being in a position--partly as a result of existing natural, geographic and historical conditions and partly as a result of its already mentioned characteristics in the preceding period--of being able to counter the price increases for raw materials and fuels with its own products in a relatively short time. From this time on, in order to ensure a balance, we had to increase our export at a substantially greater rate than our import increased.

Our Number One Task

Creating a foreign economic balance came into first place among our basic economic policy goals. In order to improve the balance we greatly moderated the rate of economic growth, we are holding the standard of living at the same level and we are greatly limiting investments. Parallel with this we are taking measures to modernize production, reduce specific material and energy use and use secondary raw material. Despite our efforts to improve the balance, however, the problem remains that, taking into consideration the debt already accumulated and the foreseeable further deterioration in our terms of trade, we can only moderate the deficit in the short term; we will need a longer time to completely balance trade and payment relationships. So we are forced to assume further credits. A large number of examples and experiences prove that a country like Hungary, of such small size and with unfavorable conditions, apparently must bring in outside resources if it is to accommodate to the radically changed world economic situation.

Despite all our efforts our indebtedness to capitalist countries has increased further; but even in our relations with the Soviet Union we have been able to counter only a part--the larger part--of our terms of trade deficit with the delivery of goods. To counter the remaining part the Soviet Union has extended credit to us. In addition to the unfavorable change in prices it has further increased our problems that the Soviet partner--due to problems well known--has been able to deliver only in decreased quantities some of the important raw materials and fuels. All this further increased our capitalist indebtedness, because our capitalist export could not keep pace with the increased materials, fuels, parts and subassembly purchases we were forced to make from this relationship.

In October 1977, on the basis of very broad and profound preparatory work, the Central Committee of our party set a long-range direction for the development of external economic contacts and for the modernization of the production structure. But problems appeared in execution, even with a correct recognition of the situation and the indication of the necessary direction. The contradiction

which arose between the efficiency requirements and the actual performance of the economy and especially the deterioration in the foreign trade balance made it urgent that we fundamentally analyse, re-evaluate and modify our economic policy practice. This was done at the December 1978 session of the Central Committee and the line developed there has been confirmed by a resolution of the 12th congress. To ensure execution of the resolution the government adopted a 5 year program which defines in detail the directions of our activity. The program is aimed at restoring our economic balance at preserving what we have achieved and at creating conditions for a later somewhat swifter development.

Realizing our economic policy goals make absolutely necessary a further increase in our existing economic contacts with the Soviet Union and the other social countries, the development of socialist economic integration. We see in an acceleration of the development of socialist economic integration the greatest reserve for the expansion of our cooperation. We consider it most important that we concentrate our intellectual and material resources--in addition to the indispensable development of the energy and raw material extraction branches--on those areas where the development of specialization and cooperation, based on the favorable conditions in each country, will make possible in a relatively short time an increase in the ratio of modern products, the high level satisfaction of mutual needs, and replacement of avoidable capitalist import and an increase in economical export to the capitalist market. Our cooperation with the Soviet Union and the socialist countries can ensure the possibility of long-range development free of fluctuation and interruptions and resting on sound foundations.

In parallel with agreements pertaining to the present 5-year plan period we worked out a long-range program for the development of manufacturing specialization and cooperation between the Hungarian People's Republic and the Soviet Union. The ideas set down therein open the way for going beyond the framework of the 5-year plan and defining the chief directions and tasks of cooperation in the most important areas of the economy for a longer period, up to 1990. Realizing the measures included in the program will aid a balanced development of our economies and a favorable development of the production structure. The program which has been adopted will make more profound the contacts which have developed thus far and creates the possibility for the realization of new forms of cooperation. It lays foundations for increasing the efficiency of production and for increasing the technical level and quality of products produced. We have defined the chief directions of cooperation in the most important branches in the interest of realizing our common goals. A further broadening of manufacturing specialization and cooperation is of determining significance, with special regard to the most important branches of the machine industry. Cooperation contacts mutually advantageous to both countries will be developed and developed further, among other things in the areas of autobus, instruments, electronics and signal technology product manufacture.

We defined concrete tasks for the ministries and enterprises directly interested in cooperation, which will fix in pacts agreements pertaining to the conduct of joint scientific research and the organization of the manufacture of and delivery of new and traditional products. The circumspect designation of our long-range economic goals and a long-range program serving their realization will create favorable conditions for a further broadening of Hungarian-Soviet economic contacts.

Within the framework of CEMA we are constantly working on the solution with joint strength of our most important long-range problems. We are working out target programs to ensure our supply of energy, the most important raw materials, foodstuffs and modern machines. The Soviet Union has an outstanding role in the realization of these target programs. We can find in bilateral agreements to be made with the Soviet Union the answer to the most important question affecting us. In the future also we hope to ensure a significant part of our energy and raw material supply from the Soviet Union. Naturally, on our part also we will do everything to take part, in accordance with our strength, in the solution of the ever more serious fuel and raw material extraction and transportation problems. We want increasingly participate in the realization of programs to which our conditions better correspond. We are studying the possibilities of larger scale participation by our agriculture, foodstuffs industry and some processing industry branches in these vast programs.

The results of "plan harmonization" for this period provide the framework for our economic cooperation planned in the years 1981-1985. According to this the mutual deliveries in the 5 years will reach 34 billion rubles at 1980 prices and will increase by 32 percent as compared to the current 5-year plan period.

Within this deliveries from Hungary to the Soviet Union will increase by 42 percent and deliveries from the Soviet Union to Hungary will increase by 24 percent. At comparable prices our export will increase by 39 percent in the 5 years, our import by 11 percent. As can be seen from the figures we have raised the dynamics of our export to a substantially higher value, in order to counter the swifter price increases for fuels and raw materials as compared to the price increase for products delivered by us.

We are trying to ensure to the maximum degree possible the equilibrium of our exchange of goods. We highly esteem the understanding of the Soviet side, which made it possible for us to develop the ratios of our export and import in accordance with the ability of our economy to bear the burden, while striving for equilibrium.

The lasting and ever deepening crisis of the capitalist world economy, the continuing change in world market price ratios, unfavorable for us, the discriminative and protectionist measures, the fundamentally deteriorated money market situation and the world political atmosphere full of tension and conflict, have an effect not only on our contacts with capitalist countries; all these things, at greater or lesser remove, have an effect on our contacts with the socialist countries, with the Soviet Union, also. Significant efforts will

be needed to preserve economic contacts at the level developed earlier. Ever more frequently we are being forced to reckon with a deficient and late fulfillment of obligations undertaken. Ensuring our internal economic balance requires, for this very reason, that we count on using only those energy, fuel and raw material supplies actually at our disposal. Ensuring our external economic balance and keeping our capitalist debt burdens within rational frameworks requires that we realize strict management in the import and use of products which can be obtained for capitalist foreign exchange.

Our cooperation with the CEMA member countries, primarily with the Soviet Union, has helped us bridge over the problems affecting our country and economy in the past decade due to the extraordinarily unfavorable external effects but also due in good measure to internal factors. These effects would most certainly have been much more serious without the cooperation being realized within the framework of CEMA, without the bilateral cooperation among our countries. For this reason also we regard the constant, planned development of socialist cooperation, of economic intergration, as of determining importance for our economy.

We are turning with special attention toward the planned high level meeting of the socialist countries to deal with economic questions. In order to solve the great and qualitatively new tasks standing before us in the 1980's we consider it necessary to make more profound the content of economic policy consultations, to perfect the methods of plan harmonization, to improve the level and efficiency of scientific-technical cooperation and to further develop the external economic and organizational conditions for our economic integration.

8984

CSO: 2500/62

GREATER INVESTMENT IN MICROELECTRONICS, ROBOTICS URGED

East Berlin WIRTSCHAFTSWISSENSCHAFT in German Vol 30 No 9, Sep 82 (signed to press 15 Jul 82) pp 1297-1316

[Article by Prof Dr Wolfgang Marschall, economist, born 1937, research group chief, Central Institute for Economic Sciences, GDR Academy of Sciences: "Utilizing the Potential of Scientific-Technical Progress for Improved Effectiveness in Intensively Expanded Reproduction." Translations of articles cited in footnotes are published under quoted headings in the following JPRS issues in this series: Footnote 4--"Mittag Addresses Combine Directors on Management Tasks," 81339, 22 Jul 82, No 2296, pp 7-24; Footnote 5--"New Criteria Sought for Measuring Economic Performance, Growth" (by Prof Helmut Kozirolek), 80685, 28 Apr 82, No 2264, pp 42-56; and Footnote 24--"Problems of Economic Growth Under New Conditions Discussed" (by Prof Klaus Steinitz), 81515, 11 Aug 82, No 2303, pp 7-24]

[Text] In order to rapidly and comprehensively make the contribution of scientific-technical progress accessible to intensively expanded reproduction, it will be valuable in the future, consistent with the aid of new technology, to unleash societal work in all forms and to utilize it for the creation of highly effective structural elements of the reproduction process.

This article shows what qualitative changes in the system of productive forces will become effective with the aid of microelectronics and robot technology. These are representative of the effects from further trends in scientific-technical progress which permanently affect the level of the material-technical base of the economy. Specifically worked out are the variations in the level and structure of capital allocation which will be effective and how these changes can be included in the process of intensively expanded reproduction. In this connection, an effort is made to classify the software problem among the relationships of reproduction theory.

For the future increase in economic performance, the comprehensive use of the effectivity potential of scientific-technical progress is of central importance and centers on the following:

--the broad application of profile- and structure-determining development paths of scientific-technical progress which raise the overall effectivity level of socialist economy;

--the full exploitation of the effectivity potential of new technology through complex socialistic rationalization in all spheres of societal work, including all application factors;

--the development of effectivity and quality of production to a degree commensurate with advanced international standards.

"Economic growth is now directly dependent on the further progress of intensification and indeed in all fields of societal production. As a matter of fact, energy, raw material and material supplies can no more be increased than can the number of workers. Also, the investment capital offered to us is severely limited. Thus, further production increases will come from an improved relation between expenditures and results due to consistent intensification."¹

In this contribution, an attempt is made to further define the place of scientific-technical progress in this process of "consistent intensification." The starting points for the consideration are: 1) that "the potentials of the scientific-technical revolution have been added directly to the main reserve for performance growth and effectivity in our economy,"² and 2) that scientific-technical progress itself has attained even greater importance in its dynamics and in the breadth and depth of its influence on the reproduction process. This involves the revelation of qualitatively new aspects of the effectiveness of scientific-technical progress in the production process in order to frame leading questions and to work out new solutions which are to be observed in the use of scientific-technical progress as a factor of intensively expanded reproduction.

The following discussion is based primarily on knowledge concerning the effectiveness of microelectronics and robotics in the reproduction process. Their application greatly influences the place of human beings in the reproduction process, since functions of human labor are transferred to machines. The basis for this is that the development of qualitatively new elements of machine systems is a fundamental qualitative change in the system of the material-technical base. "It is understandable that the assurance of stable economic growth under the condition that natural and human resources are becoming more expensive and scarce will only be possible if the productiveness of the third type of resource--the material-technical base--grows faster than in the past. And this material-technical base differs favorably from the two starting resources in that: 1) it is quantitatively

expandable through the process of accumulation, and 2) that it is qualitatively changeable in an infinite manner through scientific-technical progress."³

Significant changes in the expenditure elements of production are associated with the growing importance of scientific-technical progress for the development of the material-technical base. It is basic that the importance of scientific ground work for production is increasing and that there is no such thing as modern production without scientific knowledge, since important areas of science are finding their sense primarily in the qualitative reshaping of production. Similar close interrelations are forming between science and the nonproduction areas. An indepth analysis of the new type interrelationships between science and reproduction is a condition for comprehending the effectivity potential of scientific-technical progress and for objectively exploiting it in its full breadth. "In every modern industrial country, the funds for science and technology are among the main categories of expenditure... The calculated savings which are used to justify the use of the funds in science and technology also have to be conserved and paid back."⁴

Very important for thoroughgoing intensification are the questions: What will happen to the displaced workers and where will the saved materials and energy be used? Will they be used to quantitatively expand production--which can be entirely proper but which may not be proper for just any assortment of goods--or will they be used to increase the effectivity of new production--for example, the production of industrial robots or the use of the released energy reserve to build the material base--or will they be used in the available material-technical base to introduce modern equipment elements which trigger a high contribution to effectivity with low use of accumulation funds?

These few questions--certainly not exhausting the problem--already show how complicated it is to make scientific-technical progress effective in the reproduction process in such a way as to maximize the achieved contribution to intensively expanded reproduction. Raising the productivity of labor, lowering material and energy intensity, increasing the capital quota through scientific-technical progress are very important criteria and goals for each individual measure. To make scientific-technical progress comprehensively effective as a factor of intensively expanded reproduction requires more. However, it is especially necessary to consciously and objectively effect the reemployment of released funds and workers. Scientific-technical progress releases factors of production; however, it increasingly places requirements with respect to providing groundwork without the timely and adequate availability of which many effectivity potentials would have to go unused. Therefore, it does not suffice to relate intensification merely to current production processes. "The central question is..., that intensification stands at the beginning of the reproduction process, then naturally runs through it, thus embracing the overall reproduction process."⁵ That is a

central problem if one is talking about a new step in combining the advantages of socialism with the achievements of the scientific-technical revolution. One of the most important advantages in this regard is the planning of the societal reproduction process as a unit. The starting point is the endeavor to decisively increase the effectivity of the overall reproduction process. This is most effectively accomplished when the available workers, funds and resources are applied to the reproduction conditions associated with a concrete situation. That also includes grouping with the present reproduction process timely innovation processes which are aimed at--depending on the level of preparation made by society--contributing to intensively expanded reproduction in the future.

A directed development of scientific-technical progress requiring a large investment of societal funds possesses, as a rule, also a high effectivity potential. The faster and more thoroughly this potential is made available, the greater will be its actual realized contribution to economic growth.

Microelectronics and Robotics as Basic Paths in Scientific-Technical Progress After--starting with the production of discrete semiconductor components (transistors, diodes)--microelectronics had been developed in the narrow sense as a technology for the production of integrated circuits, memory components and microprocessors, it was necessary to rapidly push the development of power electronics and sensor technology. Worldwide, it is recognizable today that microelectronics in the narrower sense has been advanced further than the production of the other related components. The production of the latter components in a broad and varied spectrum resulted only from the effort to introduce a broad array of electronic system solutions. The first applications of microelectronics in electronic systems (EDVA, radio and television broadcasting, pocket calculators, quartz watches) required only optical display elements (LED and LCD displays such as have become known from quartz watches and pocket calculators) as "interface components." Only the use of microelectronics in control systems, in complex telecommunication systems and in demanding household machines with electronic controls (washing machines, for example) required the production of sensors and power-electronic components. For example, increased use of electric locomotives on the German railroad caused the appropriate types of power transistors to be manufactured.

Currently, a new development step in components can be foreseen characterized by the integration of sensor components with interfacing electronics, that is the combination of what were initially independent component groups into groups of hybrid and new-type standard components with a complex function tailored for a specific use. Such components will become important in the real-time operation of electronic control systems and in industrial robots of the second and third generations.

The balanced injection of new scientific-technical directions such as microelectronics and robotics into the reproduction process is no one-time act and involves no short turnover period during which one technical generation is replaced by another. Experience of past years demonstrates that such innovations take on economic importance only when they become massively effective,

since only in this manner is the desired rationalization effect unfolded in a new dimension. This also shows that the realization of the new technical generation is a solid, long-term economic process.

The goal to employ 45,000 industrial robots in the GDR by 1985 in no way exhausts its importance in the planned release of workers and in the associated improvements in the working conditions of the affected jobs. Even accounting for the effectivity potential resulting from the released workers coming on line at other places in the reproduction process still does not fully express the economic significance of this development.

Of far-reaching significance is the influence on the qualitative level of the capital inventory in all processes in which industrial robots are employed. It has already been shown in many combines that careful planning for robot application reveals the bottlenecks in the present process. These must first be removed so that the robot can fully unfold its performance potential. It has been further shown that the combination of a robot with a machine to be operated is a qualitatively new element in the system of productive forces which, as a newly created unit, possesses great effectivity potentials that can be further developed and thus can be a starting point for further decisive rationalization measures. Of special significance is the coordinated installation of several industrial robots in a technological process which also often requires a new arrangement of previously available machines. With it, a continuous flow of material can be realized in larger production complexes.

The combination of several machines with several robots as the element of future automatic production systems immediately creates the possibility of unfolding the effectivity potential in a new dimension.

The application of one industrial robot is thus probably a very important economic innovation as a detail but it carries little weight. The employment of several tens of thousands of robots over a period of years is an innovation which carries great economic weight which, however, is not based solely on the multiplicative aspect of going from the one to the many. The economic importance lies in the fundamental influence on the material-technical base of the economy. In addition to freeing factors of production and savings effects which come with every single robot application, there occur those effects which become possible with the new quality of automated processes, for example, the disappearance of intermediate steps through direct coupling of various machines, structural effects and qualitative effects which are caused by higher automation of production. Finally to be noted is that the massive application of robots in the economy leads to the accumulation of a large amount of previously unavailable experience in the use of and familiarity with a new type of technology which is of great importance as a factor in further effectivity gains.

Social Investment--The Basis for Higher Rationality

The ever closer interaction of science and production have in past decades had the effect that tools undergo a fundamental change. Today, it is not just simple machines which carry out certain manual functions of human activity; it is automated machines or automatically functioning machine systems to which are transferred ever greater human task complexes in material conversion. The automated machine makes use of the physical and intellectual functions of man. Technology plays an ever greater role in the automated production process compared to the mechanized process based on simpler machine technology. Technology is the basic scheme of process flow, of interaction between individual machines, of sequencing, of the conditions for combining process stages as well as for the beginning and end of the process. The technological translation of natural laws into productive processes is the basis of all modern production and thus the starting point and end point of intensively expanded reproduction.

A characteristic of the new quality of automated machines and machine systems is that certain human decision tasks are also transferred to automated facilities which function on--and within the framework of--programs and software solutions. The qualitative novelty is the establishment of a machine information technology⁶ as an extension of the material process technique (work machines, motion machines and transmission mechanisms). Programs and software solutions do not replace technology; they augment it. Technology as such, for example, chemical synthesis, metallurgical smelting and mechanical metal working, is normally not changed in transferring to automated process control. What is changed is that the human is more and more shunted out of the production process at the places where he must directly intervene in the process by the transfer of his function to information technology (regulation and control systems).

As soon as information technology begins to function on a microelectronics basis, it is possible to control faster and more accurately and to process more data. Automation technology can correspondingly also open up new fields of application in both production and nonproduction areas and penetrate into larger production and communication complexes. If the function of microelectronics, regulation and control is reduced to its essence from the standpoint of reproduction theory, then it is shown that information flow--independent acquisition, storing, processing, transmission and feed-back of information into the real system--is transferred to electronics. That is precisely the function which is most difficult to transfer from man to machine and is also the last to be taken over by machine. Previous applications in this direction which were accomplished without microelectronics are highly limited in functional scope and reaction capability and are thus limited in effectivity. Only modern electronic control technology makes possible the comprehensive transition from the long-prevailing mechanized and partly automated three-member machine system to the fully automated four-member machine system which brings about a change in the function of man in the reproduction process.

"The worker no longer places the modified natural object as a member between himself and the object, instead it is the natural process, which he transforms into an industrial process, that he interposes as a medium between himself and inorganic nature which he masters. He stands alongside the production process instead of being its main agent."⁷ This prediction of Marx concerning the future development of "large industry" is being fulfilled in present practice. Shunting man out of the direct production process--in like manner, out of various work processes in the nonproduction areas--is, however, only the beginning of the qualitatively new type system solution. It culminates in simplifying process technology itself and introducing novel system solutions through the performance potential created by information technology.

An instructive and conceptually intriguing example is the transition from analog to digital information technology which will lead to a state of development wherein, for example, in television sets, several hundred conventional components (including today's common integrated circuits) will be replaced by a few digital signal processors, an effect which cannot be prized highly enough from the material-economic view point. This will give rise to increased equipment reliability. As is well known, industrial robots of the second and third generations are characterized by the presence of sensors with which they can "see" and "feel." Decisive for the performance of such systems is digital coupling of the sensor with the interfacing electronics in a component. All such development trends, which today are ever more clearly beginning to appear, will contribute to raising the effectivity threshold of present technology. As long as electronic control is used to automate conventional machine tools, the achievable effect will remain limited. Only when the machine tool itself is also changed, particularly in such a way as to permit the performance latitude of automated control technology--working speed, precision, tool life (especially in the case of rapidly wearing machine parts--to be fully effective will the whole new machine system achieve a basically higher effectivity potential.

If several machines are grouped to form an automatically working complex, for example, several machine tools and several robots including automatic material feed and parts removal, system organization gains in importance. The effectivity of production is heavily dependent on the optimal arrangement of the equipment items of the machine system. Unnecessary distances are avoided and the individual operations are so coordinated that the overall most economical process variants are found and the fastest throughput of the work item is assured. In addition to the hardware (the actual machine) and the software (the programs and system support for the individual machines and their interaction), organizational preparation for production is gaining in importance. In this connection the word "orgware" [organizational ware] is being heard frequently of late.

The experience of industrial combines demonstrates that significant rationalization effects closely associated with the use of new technology

can be opened up even without heavy investment. This action was necessary to staff new production complexes with workers. In the meantime, the possibilities at this plant have been largely exhausted just on the way to achieving improved work organization and targeted qualification of important rationalization effects. "Only via technically realized information processing, which requires the availability of information technology, can the overall reproduction process be further intensified."⁸

The application of new technology in systematically and thoroughly rationalized production complexes guarantees that the required performance growth is realized with minimum investment. A formal transfer of human functions to information technology permits important effectivity reserves to remain untapped. This applies also--and even to a special degree--to the rationalization of office and administrative work.

It is obvious that a highly developed complex machine system can achieve its highest effectivity only when it is used to manufacture the most modern products and components which themselves possess high rationality in further manufacturing and application. The introduction of automated manufacturing complexes is thus not just a question of the development of the material-technical base; it influences the production process in all its components and use factors. Complex socialistic rationalization is consequently based on the types of process variants which, in the comprehensive sense, exhibit a higher effectivity, that is improve the effectiveness of more than one use factor at a time.

New Quality of Capital Investment

In allocating a capital expenditure appropriate to level and structure, two fundamental items of information have to be considered:

- a) Without previous expenditures, modern production is unthinkable. The importance of capital, also as accumulated scientific knowledge, increases more and more with the development of productivity forces.
- b) Previous expenditures are a condition for lowering present production expenditures.

With the development of modern productive forces, the previous investments experience a change in several respects wherein expenditure-increasing and expenditure-decreasing factors are effective. Expenditure-increasing factors include: an upward trend in the cost of capital; extensive scientific preparation which for its part requires significant material expenditures; software expenditures which are required primarily when flexible automatic systems are employed and high expenditures for the qualification of workers.⁹

Expenditure-decreasing factors include the following: The performance of newly created equipment which in itself is, of course, expensive but which

reduces expenditure per product and per performance unit when its high effectivity potential is fully used. Expenditure-decreasing effects also result from the condition that modern control technology and flexible automation solutions make possible significant effectivity potentials. For economic performance development, it is possible to manipulate the positive and negative effects in favor of a net positive effect. In this, the application factors can be made effective enough that through reasonable structural changes, practical organization and tight management needs can be satisfied with less and less expenditure of human work and institutional savings. The establishment of a modern material-technical base does not mean piling up the greatest possible amount of scientific and technical achievement but means, starting from the concrete reproduction conditions, to determine the focal points which dominantly influence the effectivity level of the material technical base. Investments are thus to be applied objectively so that the effectivity of the material-technical base is increased as strongly as possible with each unit of investment. Only a concentrated and focused use of investment funds makes it possible to be prepared with the high requirements on the power of accumulation which results from the acceleration of scientific-technical progress. The new quality of investment introduced into the reproduction process by microelectronics, automation and robotics especially hinges on funds which possess a significantly higher effectivity potential; thus the utilization of these funds plays an important role in intensively expanded reproduction by unleashing potential effectivity.

This includes the fact that effectivity-determining capital based on microelectronics has to be applied in such a way that the new technology is broadly effective in the existing material-technical base. Level-determining, progressive equipment generations can be realized immediately with the equipment involved in simple reproduction. Redesign and modernization of available equipment, contrasted to new investments, are more and more becoming the determining form of capital reproduction.

The present meaning of this problem is illustrated with the aid of the following statistics: An optical lithography installation--an indispensable tool for producing microelectronic components--cost about DM 50,000 in 1970. In 1980 an electron-beam lithography installation cost about DM 5 million on the world market.¹⁰ To set up a component assembly line at the present time, about a sixfold higher expenditure is required than in 1970. These expenditures are justified by the achievable productivity in component production according to the guideline "that the total amount of work invested in the product decreases; that, therefore, the human labor decreases more than the expenditure increases."¹¹

With respect to the production of microelectronic components, it happens in the end that it is not the cost of components alone that determines if and when certain expenditures are justifiable, but the microelectronic system solutions made possible by the components, for example, the application of machine tools with freely programmable controls whose utility value is characterized by greater flexibility, greater reliability, higher working

speed and a higher degree of automation with its associated improvements in working conditions. Finally, such automated "machine and control" systems are the basis for automatic machining centers as the nucleus of fully automatic manufacturing in larger production complexes. "It is the future-determining technologies which have become indispensable to the structure of our modern industry," stressed Erich Honecker at the third meeting of the SED Central Committee in reference to microelectronics and robotics. "The international tempo in this area requires the development of microelectronics by us to be even further accelerated."¹²

This means, therefore, that component production must be organized to an even greater degree. In 1981, above-average growth rates were achieved. Accordingly, the production of semiconductor components increased by 25 percent and important basic types of electronic circuits by 45 percent.¹³ That is a starting point toward realizing the demanding goal of the 5-year plan which calls for tripling the production of highly integrated circuits by 1985 compared to 1980. At the same time, the necessity for doubling the number of basic technologies was also stressed.¹⁴ This also means that new production lines have to be built and that new capital expenditures must be increased severalfold to create greater capacity since the cost of capital is going up. The potential for increasing productivity and reducing costs in many branches and areas of the reproduction process depend in a fundamental way on the availability of this investment capital.

Marx characterized tools as the most revolutionary element in the system of productive forces and the one from which basic changes in production emanate.¹⁵ Fischer and Hartmann analyzed the relations between technology and tools which lend themselves to important pronouncements pertaining to unleashing the effectivity potential of new methods. They concluded "that the revolutionary character of tools manifests itself as a dialectical unity between the technological work principle and tools;¹⁶ and further: "The elaboration of the technological work principle is a decisive prerequisite and a starting point for the conversion of scientific processes into tools."¹⁷ We fully concur in this. Scientific knowledge finds its actual translation through a technology and its concrete representation in a system of combined tools and a particular technological necessity of the work object. Experience shows that with the establishment of a technological line and the provision of the required workers and materials, and no matter how well conceived, initially no effective production results. The more modern the facility, the more difficult it is to unlock its effectivity potential. Yet, the achievable overall effectivity depends significantly on the rapid mastering of new production facilities. The greater the accumulated investment in the new facility, the greater is the gravity of this fact.

Software as a New Element in the System of Productive Forces

Scientific knowledge can be transferred only partially to a machine system. This is especially true in fully automatic production processes. Marx emphasized that all "developed machinery is composed of three significantly

different parts of the motion machine, the transmission mechanism and the machine tool, or work machine."¹⁸ Today, there is widespread talk about the development of the four-member machine system. The fourth member is the information machine which initially works effectively and independently alongside conventional machinery but which will more and more coalesce with the latter in the further course of development. However, this fourth member possesses a basic difference compared to the others. It consists of a mechanical part, the hardware: the actual information machine, and of the informational part, the software. The software naturally also possesses, in the final analysis, a material component, the information carrier; however, its essential characteristic is information itself which in the end is "knowledge." Software is essentially a specification which states what has to be done and when in order to successfully carry out the overall process. It thus coordinates the interaction of the individual machine components and work steps and also states what is to be done when certain deviations from the "technological norm" are encountered. Software is thus man's planned control over the process function. Under software control, the machine will usually make the same decision as a human operator in a given situation. To this extent, software generates no new quality or new knowledge. Software is merely the accumulated knowledge of man concerning the process. Software can however, in combination with the hardware and the machine tool, overcome the performance limits of the human operator. In large control systems, hundreds of process parameters can be simultaneously acquired, relayed, processed and transformed into decisions. Under some conditions, man would require weeks for a decision which the machine could accomplish in fractions of a second. Because of this, continuous control of very high-speed processes is possible. The performance of modern electronic control systems exceeds all conventional control possibilities.

Also noteworthy is the fact that machines do not experience fatigue, require rest breaks and, under some conditions, can even operate in unlighted and unheated rooms. The economic potential which arises from this low "social demand level" of machines will in future fully automatic factories help to unleash important economic effects and contribute at the same time to further suppressing the taxing working conditions which still exist.

Without going into details, it is clear that the information machine exhibits a new quality which differs fundamentally from the motion machine, transmission mechanism and work machine. It creates conditions under which the machine system can achieve a greater degree of flexibility; can automatically manufacture small and medium-sized lots (50-100 pieces) and the individual machine can react to certain interruptions not by automatically shutting down--a reaction which would not be new--but by avoiding the disturbance or mitigating its effect. This broad functional spectrum, especially the capability to manufacture different products and to adapt to changed conditions, will first and only be achieved through the availability of appropriate software.

With respect to the capital expenditure, it is to be noted that complete software is not usually delivered by the manufacturer with the machine; certain standard software is provided. Beyond this, the user of the machine system is on his own in designing user-specific software which has the potential to expand the utility of the tools. The more complicated the processes to be mastered, the more important is the user-specific software. When seen in this perspective, the "production" of the tool really does not end with the fabrication of its material components, but it continues until a software "package" has been worked out that enables the productive function of the tool to be fully realized in the application at hand. A tool built for automatic operation which is combined with a small or badly developed software package possesses low utility compared to the same tool combined with highly developed software.

The current importance of the software problem for the economy of the GDR cannot be overstated. Small- and medium-lot production is typical in many branches and areas due to the magnitude of the economic potential. Mass production, which is required by a single-purpose technology, is easier to automate. This is, however, the exception, especially in the metal-processing industry of the GDR. In order to also achieve a high level of automation in medium- and small-lot production, the introduction of flexible automation is assuming greater importance, especially in machine building, electrics and electronics--not least in the production of electronic components. In designing complex, microelectronically controlled machine systems, it is necessary, as already discussed, that their informational components be developed along with the material components of the mechanical systems. If Hartmann and Fischer emphasize, "Processes and tools thus form an inseparable dialectical unit,"¹⁹ then this should be expanded in relation to the automatic production process in the sense that, in this unit, the software assumes a definite, unifying position. The software is to a certain degree the component which creates the conditions in the automatic production process for the tools to comprehensively accomplish the basic economic potentials designed with the work principle, the process and the technology. As long as the human operator guides and controls the process, he of necessity intervenes in the process. In the case of the automated machine system, he transfers his task to information technology, namely the software. The exploitation of the performance potential of the investment capital, which in mechanized and partially automated factories depends primarily on the organization of production and on the performance of the individual worker, depends largely on the efficiency of the software in the fully automatic process. As already mentioned, software, which in reproduction theory is to be treated just like hardware, assumes great importance in large automated complexes.

Material-Technical Base and Intensively Expanded Reproduction

Increasing the productivity of the material-technical base by measures of scientific-technical progress is today one of the most important politico-economic tasks. "Science and engineering must thus provide the necessary

foundation for future intensively expanded reproduction."²⁰ "In this regard," stresses Heinrichs, "a material-technical base formed in accordance with its scope and structure functions as an 'input quantity' for the type and manner of utilization of the social work capability and resources and thus turns out to be the most important material prerequisite for the further transition to intensively expanded reproduction."²¹ In like manner, potentials are created from intensively expanded reproduction on whose qualitative character and scope it is dependent to what extent--on a higher scientific-technical level and with increasing propagation speed--innovation processes are economically utilized in the functioning material-technical base and to what extent they deepen the degree of economic intensification. "In this connection, the material-technical base functions as an 'output quantity' of reproduction."²² As intensively expanded reproduction, through the use of scientific-technical progress, leads to the qualitative and quantitative development of the material-technical base, the suitability of the conditions for further acceleration of scientific-technical progress depends on the development level of the material-technical base and its functional effectiveness. "Thus, it depends on the degree of productivity already achieved in such a way that a portion of production time suffices for immediate production and that an increasingly greater portion of production time is related to producing the means of production."²³

In summary, the conclusion can be drawn from this discussion that the qualitative and quantitative development of the material-technical base is the resultant of the effectiveness of scientific-technical progress and at the same time the condition for future acceleration of scientific-technical progress. The more successful the effort to bring into play the effectivity potential of the portion of scientific-technical progress utilized, the greater is the possibility of developing all aspects of the material-technical base. Weak utilization of the effectivity potential of scientific-technical progress means that higher accumulation is required to increase the performance of the economy. Strong and comprehensive use of the effectivity potential of scientific-technical progress means that high performance growth can be achieved even with limited use of accumulated capital. If high utilization of the effectivity potential of scientific-technical progress and high output coincide, economic growth is maximized. Practice perfects qualitative and quantitative processes in their unity and smooth interaction. "For qualitative and quantitative processes, it is common that they lead to an increase in production wherein the effectivity of the quantitative processes generally reach a limit while the qualitative factors or processes continue to increase the quality and effectivity of production."²⁴ The higher quality of production results in a decisive condition for further acceleration of scientific-technical progress and the higher effectivity unleashed thereby.

When this information is related to the process of economic effectiveness of microelectronics, it is seen that two basic, intimately related tasks are to be accomplished:

a) creation of the material-technical base for the production of micro-electronic components, including the required supplies and special technological equipment for the application of microelectronic system solutions in broad areas of the reproduction process;

b) quick and comprehensive unleashing of the effectivity potential of the newly-created technology as a condition for a quick start toward further accelerated application of microelectronics in the economy.

The consistent fulfillment of these conditions is indispensable, especially in consideration of the extraordinarily volatile development in these fields. It is well known that within the short period of about 20 years, development has progressed from small-scale- to large-scale-integration technology. Currently it is possible to realize a million transistor functions with one microelectronic component. Associated with this are smaller package sizes, higher working speeds and finally--that which largely determines the great economic importance of this innovation--a drastic decrease in cost per transistor function. Directly coupled with this development is the development of the technology for component production which today is to a significant extent fully automated. Finally there is the diversification in component offerings which now, worldwide, embraces thousands of active type components. This wide selection serves to guarantee the most advantageous component base for each electronic system solution and to unleash the real effectivity potential of microelectronics. It is estimated that only 5 percent of the microelectronic applications which will have been realized by the year 2000 have been realized today.

This brief sketch by itself makes clear what enormous social investment has to be made for the comprehensive application of microelectronics. Each one of the technical problems cited requires extensive scientific accomplishments, the availability of special materials and the training of appropriately qualified cadres.

The development and broad application of microelectronics require funds and workers which can only be made available as a function of increased effectivity of the available reproduction process. It is important to maximize the use of available funds and thereby to conserve funds for introducing the latest technology. In like manner, workers are to be freed through scientific-work-organization measures who, after specific qualification, are in the position to operate the newest automated technology and to specifically operate it in such a way that its economic potentials are comprehensively effective.

Expanded reproduction which is aimed at introducing automated processes requires the application of the funds of simple reproduction first. A profitable expansion of the capital inventory is first and only justified when this source is exhausted. In every case, multishift operation of the most modern facilities has priority.

Currently, important ground work is being laid for microelectronics and robotics in the GDR in consideration of the effectivity of future production. It will increase the qualitative level of the material-technical base in a fundamental way. Parallel to this, the workers are being provided the means for working with a new generation of technology, and finally the scientific potential is being further expanded and qualified so that it is able to produce the scientific background for the massive effectiveness of the new technology.

If means for microelectronics and robotics are to be made available today, it is required, on the one hand, that disposable reproduction funds first be redistributed in favor of progressive technical thrusts. The greater these funds--considering the proportional development of all branches and areas of the reproduction process--the faster it is possible to make the new technology comprehensively effective. On the other hand, the concentrated use of funds for a scientific-technical direction of special importance requires that everything possible be done in order to quickly amortize the investment through release and savings effects in human and institutional work and further to economize with the new technology an available function to be able to push the development and application of other scientific technical directions. "To an increasing degree, socialistic rationalization serves to raise the level of technologies in a fundamental way. Primarily via this avenue, science is increasingly making inroads into socialistic production. Change is being accomplished primarily through the broad application of microelectronics in production, automated process control and the introduction of industrial robots."²⁵ With respect to microelectronics and robotics, it is recognizable that the general development of these technologies themselves, with all the associated processes and social attachments, is very complex and must undergo long-term, intensive development. The full realization of these technical development directions and the comprehensive unfolding of their effectivity potential, therefore requires, the use of the released funds of human and institutional labor from the initial phases, "output quantities," of reproduction as a prerequisite, "input quantities," for the following phases.

Experience from previous application of industrial robots shows that in individual cases five to six workers are released; in other cases, however, only one worker per robot is released. Thus, it is useful to evaluate and generalize the experience of combines which exhibit the best performance. The level of the actually achieved utility of robot applications, automation technology and microelectronics is dependent on goal-oriented management of the application of new technology; on the concrete application conditions and also on the effectivity-oriented stimulation and performance evaluation of factories and combines. Only the actually realized utility is available, as a rule, for intensively expanded reproduction. The high dynamics and broad development field of microelectronics require that this

utility initially benefit microelectronics itself and, even more, that over a certain time period additional expenditures be available from other production in favor of microelectronics. The faster and more comprehensively the utility is realized from production and application of microelectronics, the sooner will the point be reached beyond which a utility surplus compared to the expenditure will be achieved on an economical scale. To take another step in combining the advantages of socialism with the accomplishments of the scientific-technical revolution requires also that this process of comprehensively unleashing the effectivity potential of microelectronics be henceforth accomplished according to planned and focused goals. To comprehensively utilize the potentials of socialist economics is so pressing in this situation because an especially great and inherently long-term--but rapidly unfolding--effectivity potential is to be made effective. These basic relationships can be conveyed by a schematic comparison of expenditure for the development and propagation of the new technology and the utility derived therefrom (see graph). The graph does not permit immediate quantitative conclusions to be drawn. It is generally applicable to the extent that, on the one hand, expenditure and utility functions behave in the sense of the given curves in all countries and that, on the other hand, similar relations in all fundamental directions of scientific-technical progress are recognizeable, not just in microelectronics. The particular behavior of expenditure and utility curves depends in each case on the scientific-technical direction analyzed and on the reproduction conditions in the country under consideration.

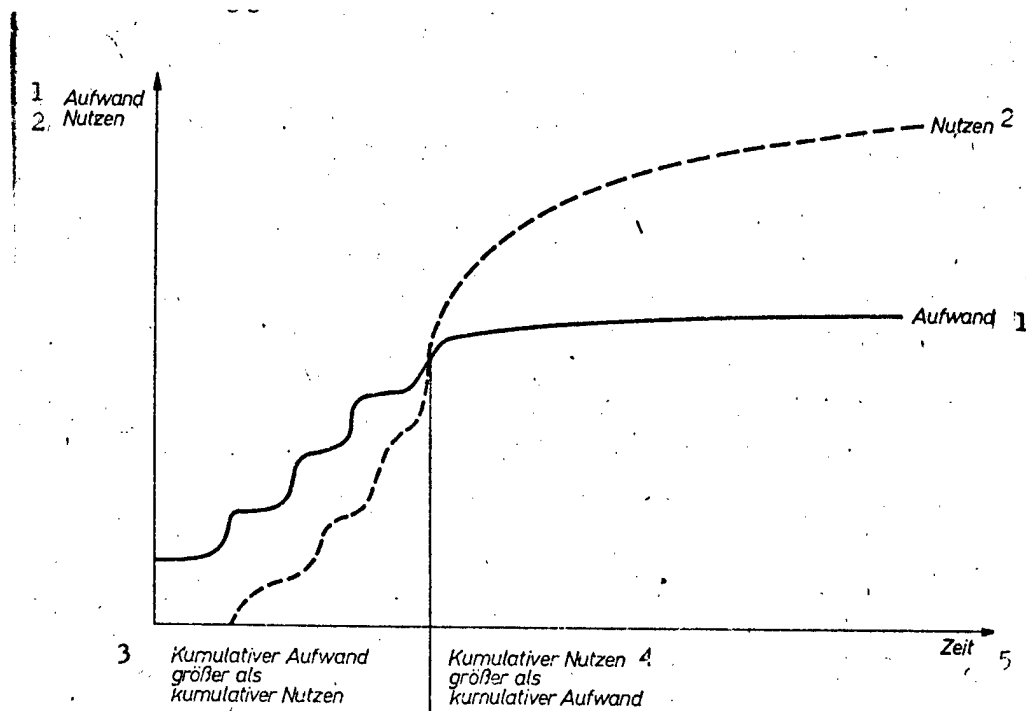


Abbildung: Die Entwicklung von Aufwand und Nutzen bei der Ausbreitung der Mikroelektronik

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Graph: The Behavior of Expenditure and Utility with the Proliferation of Microelectronics

- Key: 1. Expenditure
 2. Utility
 3. Cumulative expenditure greater than cumulative utility
 4. Cumulative utility greater than cumulative expenditure
 5. Time

The foregoing considerations showed that scientific-technical progress is decisively injected into the reproduction process via new technologies and investment capital. Unleashing the effectivity potential of new technology is thus mainly a problem of the economics of capital.²⁶

With the volatile development of productive forces in past decades, capital investment experienced not only a basic qualitative development but an

equally strong expansion which for a long time ran ahead of growth in production. As a result, a degrading trend developed in the investment-capital quota. The requirement for higher performance growth in all areas of the reproduction process also includes pursuing the transition to universal intensively expanded reproduction with fundamental consistency. This holds especially for raising the effectiveness of investment capital in the reproductive process. "Good work organization and loading must produce such performance that a capital investment of 1,000 marks in 1985 will generate 368 marks of national income instead of the 350 marks of last year." (1980, W.M.)²⁷

This requirement for a turnaround in the previous trend of investment capital quota receives its politicoeconomic importance primarily from the fact that objectively, as always, trends for increasing the capital inventory are effective due to the effectiveness of scientific technical progress, as previously mentioned. Likewise, scientific-technical progress produces tendencies for increasing the guidance potential of investment capital. The more successful and effective the application of the provisions for production, the faster society can make available the timely and necessarily increasing expenditures for the creation of capital for the further expansion of research and development capacities as well as for the targeted expansion of software capacities. The transition from "capital circulant to capital fixe,"²⁸ that is, the creation of disposable social work from the targeted expansion of the material-technical base is becoming more and more important. In practice, a whole complex of measures and conditions must be observed in order to satisfy this fundamental requirement. These involve specific questions relating to the use of method for replenishing the funds. Of high priority are all measures for increasing the timely use of capital, that is for the intensive use of capital per unit of time, and for the reduction in scrap and rework, subjects which cannot be further discussed at this point.²⁹ The development of the qualitative performance level of capital plays an important role. Experience shows that in past decades the regeneration rate of capital has increased in many areas and that the effectivity of production is largely determined by the newness of capital. The development trend of microelectronics, robotics and automation technology in general fully confirm this.

A strategy for renewing the capital inventory which fully uses the potentials of simple reproduction and is based largely on redesigning and rationalizing the available capital inventory proves to be indispensable. It is equally indispensable to accurately determine whether the entire capital inventory is to be renewed or whether parts of it are still usable. A reasonable partial renewal of the capital inventory means that the available investment funds can be used much more economically and that the degree of newness of equipment and the technical-economic level of the material-technical base will not have to be compromised. Thus, for example, in the chemical industry it is not at all necessary to replace the entire inventory of available capital equipment. The actual reactors, the system of pipes and

obviously the buildings themselves are in most cases fully reuseable. To be renewed are the regulation and control units, transducers and actuators. Likewise, in mating a painting robot with a numerically controlled machine tool, it is not necessary to use a new machine tool. The old tool--to the extent that it is in good physical condition--perhaps equipped with a more efficient control unit, is fully suitable for "robot operation." In many cases the latest technology can be built into the available material-technical base through modernization and rationalization investments.

There are many possibilities and ways for introducing the latest technology. Thus in a particular case, there are various ways to determine, considering the contribution to intensively expanded reproduction, the least expensive path to achieving one of the requirements associated with highly effective production for improving the structure and technical level of investment capital. In connection with the manifold possibilities for modernizing the available capital inventory associated with the application of microelectronics, the various considerations related to selection and useful life take on great importance. The necessity for redetermining the average useful life of the capital inventory should also be seen in this connection.

The full utilization of all related possibilities as well as the high use of the available capital inventory and finally the consistent focus on quality--the cornerstones for increasing the capital quota--which, as important effectivity criteria along with the productivity of labor, feed back into the further acceleration of scientific-technical progress.

The balanced infusion of scientific-technical progress into the existing reproduction process culminates in basic changes in the material-technical base. The high dynamics of scientific-technical progress as currently exhibited worldwide means high innovation intensity in the reproduction process in each particular economy. Planned increases in the capability of the reproduction process to absorb innovations and to create conditions for rapidly and comprehensively unleashing the effectivity potential of innovations are two sides of the same task. The greater the success in solving these problems as a whole, the greater will be the contribution of scientific-technical progress to intensively expanded reproduction. Recognition of the qualitatively new role of capital and the new types of influences on the system of productive forces emanating from information technology and their conscious, planned execution in the reproduction process are important factors in taking a new step in combining the advantages of socialism with the achievements of the scientific-technical revolution.

FOOTNOTES

1. "From the Politburo Report on the Third Session of the SED Central Committee," Speaker: E. Honecker, Dietz Verlag, Berlin 1981, p 30.
2. "Report of the SED Central Committee on the 10th Party Meeting," Speaker: E. Honecker, Dietz Verlag, Berlin 1981, p 49.

3. Nick, H., "Rationalization in a New Dimension," DIE WIRTSCHAFT PRESS, Berlin, 1981, p 18.
4. Mittag, G., "Higher Performance Growth for Further Strengthening of Our Republic," EINHEIT, No 5, 1982, p 467f.
5. Koziolok, H., "Economic Growth and Development of the Material-Technical Base," WIRTSCHAFTSWISSENSCHAFT, No 3, 1982, p 326.
6. Sykow/Daugela, "Problems in Developing Information Technology," Verlag Ekonomika, Moscow 1981 (Russian); Gruehn, U., "The Development of the Material-Technical Foundations of Information Processing--an Important Task in Improving the Material-Technical Base of Socialism," WIRTSCHAFTSWISSENSCHAFT, No 2, 1982, p 198ff.
7. Marx, K., "Grundrisse der Kritik der politischen Oekonomie," Outline of the Criticism of the Political Economy," Dietz Verlag, Berlin, 1974, p 592f.
8. Frohn, W., "Higher Productivity--Lower Costs," "EINHEIT," No 5, 1982, p 483.
9. Added to this are increases in expenditures resulting from an increase in raw material prices on the world market which have to be accounted for in this connection but which are not to be explained primarily through scientific-technical progress.
10. UMSCHAU, No 1, 1981, p 20.
11. Marx, K., Engels, F., "Factories," Dietz Verlag, Berlin 1956 to 1968, p 271.
12. "From the Politburo Report on the Third Session of the SED Central Committee, op. cit., p 32.
13. "Report of the Government Central Office for Statistics Concerning Execution of the 1981 Economic Plan," NEUES DEUTSCHLAND, Jan 16/17, 1982, p 3.
14. "Report of the SED Central Committee on the Tenth Party Meeting," op. cit., p 38.
15. Marx, K., Engels, F., "Factories," op. cit., Vol 23, p 391.
16. Fischer, I., Hartmann, K., "The Economic Strategy of the SED 10th Party Meeting--a Challenge to Technological Progress," WIRTSCHAFTSWISSENSCHAFT, No 1, 1982, p 9.
17. Idem.

18. Marx, K., Engels, F., "Factories," op. cit., Vol 23, p 393.
19. Fischer, J., Hartmann, K., "The Economic Strategy....," op. cit., p 10.
20. "Report of the SED Central Committee on the 10th Party Meeting," op. cit., p 50.
21. Heinrichs, W., "Material-Technical Base and Intensively Expanded Reproduction--Theoretical Problems in the Light of the Economic Strategy of the 1980s," WIRTSCHAFTSWISSENSCHAFT, No 11, 1981, p 1,284.
22. Idem.
23. Marx, K., "Grundrisse....," op. cit., p 594f.
24. Steinitz, K., "On Several Problems of Economic Growth Under the Conditions of Intensively Expanded Reproduction," WIRTSCHAFTSWISSENSCHAFT, No 2, 1982, p 192.
25. "Report of the SED Central Committee on the 10th Party Meeting," op. cit., p 56.
26. Problems of material and energy economies, though also important, are not subjects of the present work.
27. "Report of the SED Central Committee on the 10th Party Meeting," op. cit., p 54.
28. A good insight into the manifold initiatives and ways for improved utilization of available capital is conveyed by the information from the general directors at the seminar of the SED Central Committee with the general directors of the combines and central committee party organizers, see EINHEIT, No 5, 1982, p 480ff.

9160

CSO: 2300/34

NEW RIGHTS GRANTED TO SPECIALIZED CO-OP GROUPS

Budapest MAGYAR HIRLAP in Hungarian 18 Nov 82 p 5

[Article by Agoston Braun: "Profitable Free Time"]

[Text] Mandatory Membership Has Been Abolished

Agriculture's specialized co-op groups have been fulfilling an important role in Hungary's food production for about a decade. If they did not exist, we might have no honey to eat, but it is also difficult to overestimate their significance in the raising of small livestock and in vegetable and fruit production. As we have learned from information received from Dr Sandor Misi, main department head in the Ministry of Agriculture and Food, the authorities have also always followed the operation of the specialized groups with great attention. The regulatory conditions for the groups were changed this year.

In the past, the specialized groups could operate only within the framework and under the direction of AFESZs [General Consumer and Marketing Cooperatives] or producer cooperatives. State farms, forestry management operations and food industrial establishments did not have this right. For example, the rabbit-raising agricultural combine had to organize specialized groups under the sponsorship of AFESZs. It also happened on occasion that producer cooperatives, grew seedlings which had no need at all for them, grew seedlings; but the forestry management operations in the background fared quite well even so.

Favorable Changes

The regulation that erased the prejudicial rights of the cooperatives and extended the opportunity to operate specialized groups to all agricultural enterprises has put an end to this. The relationship of the basic organ and the specialized group to each other has also changed significantly. Up to now, everything the groups accumulated--plantations, machinery, buildings--became the exclusive property of the large operation maintaining the group. Since 1 January this is subject to agreement: everyone has free control of his share and may take it with him when he leaves or ask to be brought out. Whatever is in or above the ground--for example, a fruit orchard--he can sell; in a word, he can exercise his right of ownership.

The possibility of social security coverage was also extended to cover the members of specialized groups. Many small producers who did not have other employment could not receive sick pay or retirement benefits. In general, women also working in the household found themselves in such a situation; but from now on it will also be possible to get credit retroactively for years not credited previously.

In many cases, the work of specialized groups was also hindered by an overgrown administration. Nowadays, no hierarchy is needed where the president himself can handle all of the office work. Simplification is also served by the fact that the so-called mandatory membership has been eliminated. That is, before, only those who had a membership relationship with the cooperative maintaining it could work in the AFESZ speciality group.

Starting the first of the year, the opportunity is there to form industrial and service speciality groups. The level of interest is seen in the fact that in the first half of 1982 more than 80 such units were formed. This form is spreading, primarily in those regions of the country where it can attach itself to significant foundations, and a great future is being predicted for it where the advantages are significant from the standpoint of all interested parties. The key concept in these enterprises is mutual interest.

Their Number Can Increase Further

Several thousand hectares of vineyards can be found in the possession of state farm, forestry management and food industrial enterprises that are no longer suitable for large-scale operation, but it would be a sin to uproot them. Therefore, speciality groups working in them are being formed one after the other, and they are also making use of the experiences first learned in the attempts of the Balatonboglár, Hosszuhegy and Kiskoros State Farms. The correctness of the method is proven by the fact that this year about 22,000 people have undertaken the work on about 3,000 hectares. And this is an effort that would have been left undone without the specialized groups. The opportunities are similar in livestock raising: there are more than 2,000 stables in the country that can house fewer than 50 cattle or 150 hogs and that are outside the area of economically usable buildings because of the distances involved. But small entrepreneurs can still work them and earn significant incomes through them.

The agricultural speciality groups thus organized can further increase the more than 2,700 already in operation, 154 of which were formed in the first half of this year, proving the effect of the above-mentioned regulations. In the final analysis, 220,000 members represent the same number of families, so that there is no doubt about the popularity of the groups. (One additional interesting feature is that 70 percent of the people involved in it are laborers and employees working in industry, but the number of intellectuals is also significant.

If the organizations responsible for the food supply take their task even more seriously than before, the speciality groups will play an even more planable role in the country's food production.

SHORTCOMINGS IN HOUSING CONSTRUCTION VIEWED

Budapest FIGYELO in Hungarian No 43, 28 Oct 82 p 1

[Article by Csaba Vertes: "Disappearing Apartments"]

[Text] We have seen and heard on TV that one of the beautiful single-family home sections of Miskolc-Ujdiósgyőr will perhaps--due to the prime minister's intervention--escape being demolished (in professional language: clearance for new construction). We have also seen and heard that another section of Miskolc--which reminds one of the poor atmosphere of the Maria-Valeria slum district--was not threatened and is not threatened today by the bulldozers, because the planners of the new construction, obviously due to some type of consideration, decided to eliminate the faultless and expensive homes instead of the slums. It appears that the construction industry and this planning team, which swings this magically modern and huge industrial apparatus into motion, continue to apply without a blink of the eye that practice of regional development and urban and housing construction that should have been questioned for years--and especially so today.

Let's just take a look; in 1960, that is, at the beginning of the first 15-year housing construction program, there were 2.8 million housing units in Hungary. Today, there are 3.7 million. Thus, in 22 years the increase is 900,000 apartments. Not bad. However, during these same 22 years, many more apartments than this were built--about 1.5 million. Some of the missing 600,000--about a quarter of a million units--have in the meanwhile either fallen into a condition where they can no longer be used for housing, were reclassified as vacation homes or were abandoned for some other reason. The other, larger part of the missing 600,000--about 350,000 units--ceased to exist. They were cleared away. Either because they became unsalvageably old or because the space was needed for building new apartments. Not as if the old and the new could not have existed alongside each other. (There are so many, many examples of this all over the world, notably even in our neighboring countries...) But our modern, industrialized construction enterprises almost exclusively prefer huge areas razed as smooth as a tabletop, and if the opportunity arises, they raze to the ground not only valuable residential districts but also large fruit orchards and even smaller mountains. And for technological, technical, interest and many other reasons, they cannot really do anything else. At least not until others somewhere else change, for example, interest rates or ease technical requirements.

Examples in Budapest: One apartment complex in Pestlorinc [on older maps: Pestszentlorinc] was build after a city block of single-family homes in excellent condition was razed. The single family homes of Kaszasdulo and Pok street in district III became victims of the apartment complex program. A surprisingly large portion of Ujpest's housing met the same fate, and we could continue this list of examples of destruction not only in Budapest. But let's stay in the capital city.

Between 1970 and 1980 the capital city's housing inventory increased by 101,000 units, while a total of 162,922 new apartments were built. And by 1990, along with the construction of 300,000 new apartments, they plan to demolish another 110,000. Just in the capital city alone. If things continue like this, then despite the new housing policy and management concepts, we will have to run faster and faster just to stay in place...

I know; they say this is necessary. Due to industrialization and the location and alignment of the new houses and the normative costs related to this and the shortage of real estate and in general the unbelievably high cost of fitting old and new together and also supplying the new residential districts with public works and roads and parks, also according to mandatory standards.

But others say the average cost of razing a single apartment is almost as much as what it costs to build the new apartment. And this cost actually doubles because the residents of the destroyed homes have to be placed in new apartments. And it is not certain that the same people won't register within a short time for new apartments. Because, for example, they are unable to accept that, let's say, as Ujpest residents they have to move to Bekasmegyer. Because it is unbearable for them that from a home with a garden they were moved into a concrete monstrosity that houses as many people as lived in a whole village and that utilities called "modern and comfortable" are neither modern nor comfortable as far as they are concerned. Or because they simply do not have enough room in the "modern comfort," due to the fact that often the eliminated apartments were much larger in size--and even more comfortable despite the use of oil heat or ceramic space heaters--than the newly built ones.

Not to mention that in connection with this whole clearing and new construction practice we might suspect some kind of anarchy. The president of the Capital City Council said 2 years ago before the MSZMP's Budapest Executive Committee that land preparation is slipshod, that new houses have been built years before clearing in designated areas was completed and that often only when the job of clearing actually begins is it realized that many more apartments have to be taken down than had been indicated. This is just as unpermissible as--and there are examples for this--the fact that in more recently built municipal centers, 100-150 apartments had to be razed solely for the purpose of putting in grassy areas, because there is also a "green area standard."

Perhaps there is. And perhaps our principles, standards and planning and construction practices are such that we can build new things only by destroying more and more. But because this is an unbearably expensive

practice--and in some cases also debatable aesthetically--and because it cannot be followed with money, time, human labor and machine capacity, construction materials and infrastructure, we can do nothing but thoroughly review the system of standards that defines the entire planning and construction practice and the theories--which, by the way, also have political motivations--that are behind this system of standards.

Because in spite of all the explanations, it is still an unacceptable situation that by building 1.5 million apartments--and building them at what cost?!--we have produced an increase of 900,000 units in the housing inventory in 22 years. Not even as many as the first 15-year program projected.

It may be that the residents of the family homes and villas of Miskolc-Ujdiosgyor can stay in their homes built at no small sacrifices. According to the latest report, clearing has been suspended and the reorganization plan ordered reviewed. But for this, why was it necessary to have the president of the government--as the area's representative in the National Assembly--intervene? And will his intervention--taken in this specific case, and perhaps successfully--have such an effect that those who have the authority (and responsibility) in matters of housing construction and land clearing finally take it seriously? All the things they have done in the past--do they also constitute a practice to be followed in the future?

8584

CSO: 2500/29

PROBLEMS IN CURRENT STAGE OF ECONOMIC REFORM ANALYZED

Warsaw ZYCIE GOSPODARCZE in Polish No 40, 24 Oct 82, pp 1, 4, 5, 6, 7, 8

[Article by the Economic Consultative Council: "Problems of the Present Phase of Guiding the Reform"]

[Text] The Economic Consultative Council [KRG] has submitted to the government extensive documentation on the topic of guiding the reform, consisting of the Council's introductory opinion, likewise the introductory results of a questionnaire which was directed to several hundred enterprises, as well as seven texts by authors. The Council adjudged it as equitable to acquaint the authorities likewise with the views of its members even at that time when they were not completely up to date with respect to the work collected (the remainder is contained in certain alternative proposals). It is also the Council's opinion that the analysis of the results of the questionnaire will become more complete and profound. At present we are publishing the Council's work in an abbreviated form, which passes over the more immediate information about the questionnaire as well as Part III. This part deals mainly with matters on which the Council has already previously adopted a well-expressed position (workers' self-government) or has stated them in parallel opinions on the topic of "Variant Concepts of the Socioeconomic Plan until 1985 and Preliminary Foundations for the Years 1986-90." A more complete development of the questionnaire is in progress.

I. General Remarks

1. The reform is being guided under conditions immeasurably more difficult than those which were laid down not only during the first half of last year--when its guidelines were worked out, outlining the ultimate system--but likewise during the springtime months, when standards were adopted creating the basis at that time for guiding the new system. Just since the end of last year large-scale difficulties have manifested themselves in ensuring a sufficient supply of raw materials and intermediate products; moreover, there were several occasions of overestimation at that time of the possibility for increasing raw-material deliveries from the USSR in order to compensate for

the decline in foreign-exchange imports. Simultaneously--according to the calculations of the NBP [National Bank of Poland]--the inflation curve in spring reached 15 percent of the people's discretionary fund, indicating a further upward trend. The actions which were undertaken at the turn of 1982 were not able to overcome these two negative manifestations to the degree which would make it possible to ensure equilibrium and prevent a further decline in the national income, although in certain sectors they did ensure a tangible correction. This had to bring about a broadening of administrative division. Not all the moves aimed in this direction have proved to be accurate (for example, an excessive amount and capacity of operating programs). But if it is a matter of the inflation curve, then in the "Warning Forecast..." we calculated it at the halfway point of the current year to be at least 10 percent of the people's discretionary funds, fearing, however, its rise during the course of the second half-year. At this moment we would estimate that by the end of the year the "curve rate" will approach closely the level for the entire year. As time elapses, the hope of our being accepted into the IMF is becoming more remote. Negotiations with the banks are proceeding quite favorably if it is a matter of the present year. We must, however, take into account the fact that, although these adjustments are more favorable than our formal debt obligations, nevertheless, the burden of our balance of payments in 1983 will be considerably greater than what is taking place in the current year.

Likewise with regard to the internal balance of goods and money as well as with regard to prospects in the area of import possibilities, it is clear that unfavorable conditions will be characteristic for many years to come (we will speak about these matters in more detail in our opinion on the topic of conceptual variants of the three-year plan). Therefore, what we have designated--somewhat cautiously--as unfavorable conditions for guiding the reform affect not only the current year but also the ensuing years. This imparts even greater importance to the matter of adapting functioning, systems-type arrangements to actual economic conditions. We must take heed, however, to see that the temporary arrangements do not undermine the goal of approaching the most essential foundations of the ultimate system, but rather strive as much as possible to facilitate the gradual objectivization of the decision-making criteria of the authorities and enterprises, thus successively enhancing management efficiency.

2. During the course of the discussions which were held in the Council not a single voice was raised, neither among its members nor among the experts who were also taking part in its work, to suggest a programmatic return to a central-orders-type of system in the traditional style. This does not exclude, of course, proposals aimed at increasing and expanding interventions by economic means in cases of bottlenecks.

The position taken by the Council could, therefore be defined as one of maintaining the basic guidelines of the reform and seeking out methods aimed at extracting us from the current difficulties in such a way as to cause the least possible damage to the path leading to the ultimate system. In our deliberations on this topic we have not started down that frequently used road of comparing the existing state of affairs with the system defined as the

three "S's" [self-government, self-dependence, self-financing]. For this kind of undertaking gives rise to postulates for growth which fail to take actual facts into consideration, although it may be the feeling of a profession that the reform is not producing timely, indicative results. The disassociation from such an undertaking seems to us all the more important in that it can be encountered not only among economists who nourished that kind of illusion or who supported it subconsciously in the opinion that the social hopes connected with the reform would exert a kind of pressure in the direction of implementing it rapidly and more concretely, but likewise among wide social circles which succumbed and do succumb to illusions on the topic of the possibility of rapid correction, but who, for the time being, have identified the reform with a disagreeable, albeit necessary, price operation.

Let us proceed to a different matter. In analyzing particularly the problems and segments of the emerging system from the viewpoint of their being divided up into basic and result-type functions, we have tried herein to always maintain a realistic attitude. We fully perceive the extremely difficult dilemmas arising from the realities of the economy. We are especially aware that inflationary pressures, resulting in the emptying of store shelves, play an incentive kind of role in every system and every raise in wages. We do not, however, draw from this simple result the conclusion that we must, above all, carry on far-ranging deflationary measures, without taking into account the reactions of the working class and the entire society. The situation would have been incomparably easier if the reform of food prices had been carried out earlier, and particularly if it had had, as was intended in the initial version, a deflationary effect rather than an inflationary one, as it turned out.

Likewise, it would have been easier to operate today if the state of the system of contract prices on industrial items, as a result, among other things, of the reform in producer prices, had been accomplished with full consideration being given to the aspect of market equilibrium. Research studies indicate that, regardless of the restraining actions on the part of the authorities (which, as we estimate in the light of the information possessed by us, did not play any great role), the enterprises did not take into account the aspect of sectorial equilibrium, but operated rather by means of a cost formula, which only raised profits (most often doubling them). It would also, however, have been a mistake to have leaned toward correcting this error by means of simply renewing the measure against high profits. In particular, reservations were raised in the Council with regard to the mechanical raising of prices on goods in view of the obviously rapid leveling out of the present two foreign-exchange conversion factors (50 and 80 zlotys to the dollar), while, at the same time, shunting aside their consequences on the price of retail items, without taking into consideration what the final product would cost and which groups of people would be burdened by these rises. Matters of prices, taxes, and the incentive system will be discussed by us in more detail in Part II. Here it has been solely a question of emphasizing the unprecedented and difficult to solve contradiction between the necessary priority directed at the matter of equilibrium and the equally necessary postulate of strengthening the incentive system for working people.

Another fundamental dilemma touches upon the allocations of material means which strengthen enterprises as well as foreign exchange, where there exists, by virtue of the force of the matter, a contradiction between the trend to ensure these or other priorities, and likewise by an equitable trend to narrow down administrative allocations. Just as in the problem designated previously, there is certainly a very subtle distinction between economic and administrative operations.

The third problem which, in this introductory part of the report, it seems to us necessary to point out is the matter of equilibrium in the labor market. Prevailing last year was a genuine fear psychosis regarding unemployment, which was brought about by an obvious overrating of increases in the labor force and an overestimate of the rapidity of the influence of the reform mechanisms on their release [dismissal]. Hence, there came into being a quite unrealistic conception of the mix of the labor force and the FAZ, which had to service this conception. At this time, equally in the opinion of enterprise directors, as well as that of many ministries, there is also in public statements an overemphasis being placed on the difficulties in the field of securing sufficient quantities of workers. We will discuss this matter in more detail in our opinion on the topic of the conceptual variants, limiting ourselves here to the assertion that the presently widespread views are much more realistic than the panicky fear from last year and that, unfortunately, it is very difficult to count on a large-scale shift of workers from production subsectors where increased difficulties exist to subsectors which are suffering from a great shortage of workers.

3. Strongly desirous of expanding the information base of its own work, the KRG addressed a questionnaire to several hundred industrial and construction enterprises, touching upon the conditions and methods of their operations at the present stage of the reform. The responses which we have received up to 15 August of the current year have allowed us to reach a number of conclusions, and, above all, we have asserted our view of the far-reaching differentiation of the situation. In such a state of affairs it would be a real mistake to look for the restraints on enterprises' activities in merely any one limitation. Most frequently several of them stand out, and sometimes a great many. This assertion leads us to the conclusion that we are not capable of recognizing any one factor as the key one, sufficient to cause steps to be taken in the enterprises. Of course, certain problems move to the forefront and sometimes even become general. This does not mean, however, that the solution of any one of them (for example, a change in certain financial elements) is sufficient to conjure up universally positive phenomena.

The process of adapting the reform to the conditions of the moment must, therefore, be multifaceted, selective and coherent at the same time, which is not an easy thing to accomplish.

II. Key Problems

Amid the three factors influencing the reform's future, namely the following: the correctness of the systems-type solutions, the appropriate profiting of the solutions of the reform by the current economic policy, as well as the

social and political activity on the matter of the reform--in the second part, without belittling the importance of the last two factors, the Council's attention has been concentrated on systems-type matters.

The Market

The status of profound imbalance in the fundamental segments of the consumer-goods and supply market has led to the necessity of instituting the following measures, among others:

- state control over the basic consumer items;
- distribution of the means of production;
- bureaucratic support or control of the most important price groups;
- furnishing subsidies for goods in short supply because of this or for necessary products.

Each of these solutions, to a lesser or greater degree, complicates or makes outright impossible the development of self-acting mechanisms of subordinate allocations to economic rights; it compels the maintenance of trade-auction mechanisms along with the responsible organizational infrastructures, and it pulls along a chain of deviations from economic principles in the future, even from the primary causes of economic elements.

A bold policy for returning to an internal equilibrium would require the following measures, among others:

- observing in practice the fundamentals of protecting only the economically weakest groups of the population and the basic needs, with which it is not suitable to multiply the diverse market and income privileges, often petty but in toto substantial (directed selling, amortization of credits, transfer of funds, various new kinds of relief, new industrial-branch ration cards, various income or wage parities, etc.)
- extremely careful budgetary economies and more rigorous financing by the banks;
- taking advantage of each occasion to remove regulations for restoring equilibrium to prices.

The lack of consequential obstacles to the increasing financial torrents of intensifying effective demand without responsible coverage burdens with additional difficulties the task of the reform emerging from a transitional period.

The solutions to the present problems of our economy's functional mechanism can be sought for in two methods:

- 1) According full preference to economic means--by "taming" the markets, creating restraints in an attempt to hold back the excessive rise in prices

and give freer rein to the versatility and limitation of central price regulation, at least in the sphere of the supply market.

2) Allowing broader application of administrative means--by expanding regulations, increasing the scope of state control over prices, control and verification of the sources of rising profits (prices or a growth in production, lowering of costs), monopolization of trade, etc.

In other words, it is a matter of what and to what degree the allocations of materials in short supply should be decided by preference to institutions (organizations) which have a tendency to dispose of them by selling them and within what area an active function of division will be filled by prices which are cut off from access to those means of an enterprise which cannot rise in connection with their costs. Further problems result from this. While allowing an active role to be played by prices, free enterprise with regard to supply, the powerful action of the profitability principle on wages and investments, are we, at the same time, capable of protecting the satisfaction of basic needs, while not allowing excessive income ranges, preventing the prodigal disposition of investment funds to some enterprises while there is a lack of funds to eliminate bottlenecks and implement general-economic goals in other enterprises?

The dilemma of the ensuing stage of the reform consists, therefore, of whether it is possible to finally take this step in the direction of the self-acting allocation-effective mechanisms, or whether the conditions for this do not exist either, and we must apply some other kinds of means with all their consequences.

Taking into account the fact that in the present economic situation the central authority must frequently have recourse to administrative solutions, the Council's task must be to make a fundamental effort to take advantage of all the possible roads leading away from direct, institutional controls to the matter of self-acting, effectiveness-allocation mechanism.

It is in this context that the remarks and proposals stated below must be considered. While still retaining in many cases the temporary solutions, we must modify them in the direction of objectivication, clarity, and exactness of the criteria for affecting administrative procedures. It is important to make more precise the limits of applying direct-administrative-type controls, since, at present the practice is often observed of breaking the basic foundations of the reform, its spirit, on various occasions and for very diverse causes, on ad hoc grounds.

Prices

1. Prices of Consumer Goods

In the monetary-market situation for the next 2-3 years there will be a division of the consumer-goods market into the following three spheres:

a) goods subject to quantitative sales regulations, on which official prices are set;

- b) goods included under value or point regulation whose prices are regulated;
- c) goods on open sale, whose prices fundamentally correspond to the level of equilibrium (i.e., they level out in accordance with the law of demand and supply).

We must exclude--or at least significantly reduce--instances of open sales at prices which do not ensure equilibrium. In particular, we must turn our attention to the application of this principle in the case of the so-called commercial sales (for example, cigarettes, alcohol, gasoline).

These general postulates correspond to the view of the majority of the Council's members. The following questions, however, are disputable:

- 1) What should be the compass of the individual spheres and, in particular, how should we delineate the boundary between spheres (b) and (c)?
- 2) In what field should price regulation be applied? Should it be only in the sphere of state-controlled sales, or should it also be applied to certain commodities on open sale?
- 3) How "deeply" should price regulation reach? Should it be limited to retail prices, or should it also include the sale prices of manufacturing enterprises and trade margins?

1. 1. The positions of individual Council members in the matter of the scope of spheres (b) and (c) correspond to the "division" between the two extreme variants as follows:

1. 1. 1. To limit the state control on sales to strictly defined, non-numerous, industrial goods, standard in nature, allowing open sales permanently on consumer items of industrial origin (in K. Porwit's work, which is known to the Council).

1. 1. 2. To expand the state control on sales of a determined majority of industrial items in general use, while limiting the sphere of open sales to goods which satisfy the needs for further groups, as well as those non-numerous groups of goods in general use whose supply in the next few years may be increased to a degree sufficient to restore equilibrium to the market, bringing about considerable rises in their prices (work written by J. Lipinski).

Moreover the authors recommend the creation of value (quota-type) state controls for these proposals.

1. 2. In the matter of the field of applying state-controlled prices and contract prices, the following extreme proposals have been formulated, encompassing a broad "spectrum" of the KRG members' views.

1. 2. 2. To apply the regulated prices likewise in the sphere of open sales (c), if the following cases occur:

a) the supplier has a monopolistic position or something close to it in the distribution of buyers;

b) there exists a well-founded apprehension that the suppliers of such products will come to an understanding in the matter of setting ["fixing"] prices or with regard to sharing the market;

c) those very enterprises will be simultaneously manufacturing items earmarked for open sales and state-controlled products.

In cases of (c) it is a matter of preventing the extraction by the suppliers of greater financial profits from open sales than from the deliveries of state-controlled items.

1. 3. It seems that the choice of an appropriate solution in cases of 1) and 2) depends primarily on the following factors:

--what weight is attached to the effects of income-redistribution increase of retail prices; how the strength of social opposition in the face of such effects is evaluated;

--how the anticipated efficacy of price equilibrium is evaluated as a stimulant in correcting the economy of enterprises and--especially--as a stimulant in increasing the output of market goods;

--how the efficacy of an eventual anti-inflationary tax is evaluated or that of other fiscal solutions which decrease the profits of producers with a rise in prices and which encourage increasing the volume of output (this matter is raised in the works of the authors M. Kabaj, J. Lipinski, K. Porwit, and U. Wojciekowski).

1. 4. In the matter of the "depth" of the state control of prices (Question 3), the following alternative solutions have been proposed:

1. 4. 1. Limiting the controls to retail prices. Allowing contract prices and profit margins in relations between industrial and trade enterprises--even where retail prices are controlled--while, at the same time, creating product [goods and services] subsidies, which would be communicated to the trade enterprises.

1. 4. 2. Extending controls not only to retail prices but also to the market prices of industrial enterprises as well as commercial profit margins.

Solution 1. 4. 1. could function efficiently only with the simultaneous fulfillment of the following conditions:

a) retail prices would be controlled on a basis independent of the specific costs;

b) the above-mentioned product subsidies would be "firm"--independent of the prices demanded by the producers.

1. 5. Discussions in the KRG on changing the foundations for price controls (Question 4), made conditional upon various proposals in this area:

1. 5. 1. It is recommended that a beginning be made on applying the so-called "Hungarian solution" in a version modified to correspond to the Polish economic-financial system. Namely, it is proposed that in those branches where certain products are the objects of regular export--and where deliveries for export have an essential share in the total output--thus to designate the prices on manufactured goods not intended for export so as to include in them a newly added value, coinciding with the unit time of work [required] (or the time during which the machinery was engaged); it is not to exceed the average level of the value newly added for sale in the transaction prices of products for export.

At present, however, there has been a backing off from this proposal, taking into consideration the anticipated negative effects of such a solution, as confirmed by the practical experience of its use in Hungary. It would incline enterprises to lower the volume of deliveries for export--limiting them to products with the highest degree of profitability (or the highest newly added value).

1. 5. 2. The Council likewise does not recommend the direct basing of controlled prices on the average transaction prices obtained in the export of the given items. In the manufacturing industries--as distinct from the raw-material industries--on the whole, there are not the conditions for the efficient functioning of such a solution.

1. 5. 3. From the viewpoint of the circumstances mentioned above it is not productive to control the prices of the manufacturing industry's goods based on the domestic costs of production. The defects of such a basis are universally known. Desiring to mitigate some of them, a proposal has been put forth to freeze for a set period the newly added value contained in the present prices. In order to ensure this the following formula was proposed in 1983 for defining the basis of the ultimate control price:

/The direct material cost/ [in boldface] on an average level from the second and third quarters of 1982, as corrected for official changes and controlled prices on raw materials and energy--/a surcharge to cover processing costs/ [in boldface], indirect material costs and profit, established as a quota per unit of the given product on an average level from the second and third quarter of 1982.

The surcharge thus established should remain frozen as least for 1983, being corrected only in extraordinary cases, hence, primarily in cases where a nationwide payment policy would require it. The above-mentioned formula would have to be completed with regard to products newly introduced in 1983. The foundations of setting the prices on such products would require additional discussion. In the opinion of the author of this proposal (J. Lipinski), it would favor the weakening of the self-strengthening process of "cost" inflation because in the area of the frozen surcharge there could be no move to increase wages or increase the growth of an enterprise's development outlays. It would also be a stimulus to increase the volume of production.

1. 5. 4. It was proposed at the same time to work out new fundamentals for setting commercial profit margins (within the sphere encompassed by the controls on retail prices). These would be quota-type profit margins rather than percentage-type ones, dependent on the labor-intensiveness of the services connected with the sales of the category of goods. In this manner we could neutralize the self-interest of the commercial enterprises in raising their retail prices.

1. 6. If it is a matter of the prices on items which satisfy the needs of further groups, then the Council is amenable to maintaining the position adopted in this matter in the "Cautionary Forecast." The sales of such items would be burdened by a special tax, which is called a stabilizing tax in the "Cautionary Forecast," as the purpose of it would be to ensure the raising of their prices to a level which would even out demand with supply (defined while taking into account the priority of deliveries for export). This means truly being wary of a "precipitous approach"; it is, however, a "lesser evil" than the redistribution effects of a strong growth of prices on items of common use.

2. Prices on the Means of Production

2. 1. Domestic market prices on the basic raw materials and materials used in production, which are actually the objects of import or export, ought to be set on the basis of the average foreign-exchange prices paid in import or obtained in export to countries of the second payment area [capitalist countries] (as the prices of the real increase of imports). Only a few Council members are of the opinion that the prices on these items ought to be set on the basis of foreign-exchange payments made on the basis of a portion of their imports (and, hence, likewise the prices of the first payments area [socialist countries]).

2. 1. 2. The domestic market prices on basic raw materials whose export from Poland is becoming an important part of international turnovers (for example, coal or sulfur), and hence a change in the magnitude of their export could have a substantial influence on the level of the prices obtained; these prices should be set on the basis of the average price obtained from the least paying importers from the second payments area or the real operating cost of the domestic producers, if the foreign-exchange price mentioned above is lower than it.

2. 1. 3. The domestic market prices on the basic raw materials which can be the objects of export (the so-called export-type raw materials) ought to be set on the basis of the exchange prices or of others from the top of the set classification prices.

2. 1. 4. The domestic market prices on the remaining raw materials and materials for whose production import deliveries are not repetitive in nature ought to be set like transactional prices.

2. 1. 5. While recognizing the advisability of possible wide-scale profiting from foreign-exchange prices for the formation of domestic market prices on

raw materials and materials for production, the Council remains steadfast, however, in its position that--taking into consideration the price reform already accomplished, as well as the existing divergence between the course adopted in pricing the basic raw materials, and the burdens in foreign trade--the controls presented above should not be applied simultaneously and mechanically but gradually and selectively, in accordance with the fundamentals which were discussed in the part touching upon foreign trade.

2. 2. If it is a question of the prices of machinery and equipment as well as other manufactured means of production (with the exception of standard products), then there is no, nor will there be in the next few years, any conditions for controlling them on the basis of transaction prices. This is not allowed by the circumstances which were mentioned above (in paragraphs 1. 5. 1. and 1. 5. 2.). Hence, in the area wherein the prices of these products would be subject to controls, they would necessarily be set on the basis of the domestic production costs (with an eventual freezing of the newly added value, in accordance with the proposal presented in paragraph 1. 5. 3.).

2. 3. With regard to intermediate products, the question is disputable as to which area should be the one where control prices and contract prices are applied. In this matter the following variants have been proposed:

2. 3. 1. To accept within a broad area the freedom to form prices on intermediate products.

2. 3. 2. To maintain price controls on intermediate products in all cases where there are price controls on final products.

Arguments providing the grounds for these proposals along with critical remarks on each of them are contained in the works by the authors J. Lipinski and K. Porwit.

3. Farm Prices and Prices Paid by Farmers

3. 1. 1. The prices paid for good products by farmers ought to be balanced prices. This is particularly important if we are talking about fertilizers because, when their deliveries are limited, a rational allocation between the farmers who know how and those who do not know how to take advantage of them can be attained only on the path of establishing a rational price level, one which does not require state subsidies. Less urgent is the matter of prices on heavy equipment (motor vehicles, combines), notwithstanding the fact that already at today's prices it is frequently necessary to obtain state credit, and this brings about its own kind of distribution. Such prices could be lowered by applying balanced prices (and commercial credit), thus ensuring, on the whole, a more effective allocation than administrative methods. Other items supplied to agriculture by industry should be, after examination, paid for in advance, whether it be in a category such as fertilizer or a category close or similar to heavy equipment.

3. 1. 2. Taking the area into account, procurement prices should be used less than they have been up to now. However, a different approach should be taken

to their levels. At the present moment there exists a tendency of unwillingness on the part of farmers with regard to official prices, but this is a simple result of agriculture's strong position (economically and politically). For longer-range prospects it should be understood that it is in agriculture's interest to establish official procurement prices on mass items because, for farm products, stability of conditions and certainty of markets are at least as important as profitability, the so-called price level. The fact is that not only the socialist countries but also the developed capitalist countries employ a uniform system for marketing farm items of a mass nature. In particular, with regard to the social situation and the special expression of urban consumers on the matter of meat, it seems, at present, to be absolutely unsuitable to adopt the proposition which has been put forward from many sides (including the Council's agricultural group) to abolish the official procurement prices and allow meat prices to fluctuate freely.

With regard to the level of prices paid in procurement, we must back off from the thesis adopted at one time that any rise in prices on producer goods for agriculture must be compensated for by a corresponding increase in procurement prices. Of course, it would not be possible to remove this fundamental at once, but we must be resigned to adopting this as a guiding principle in successive revisions of prices on the means of production for agriculture and procurement prices. From a systems-type point of view we must--leaving aside other problems of current economic policy--adopt the fundamental principle that, in calculating profitable prices for the farmer, we must take into consideration the predominant fields rationally, disregarding the costs in less efficient economies. Aid for rural people, who under these conditions would find themselves in a difficult situation, could only be social in nature in the matter of certain well-defined categories (age, an exceptionally large number of persons in the family, a lack of incidental income, etc.).

Foreign Trade

1. From the polls and professional reports which have been conducted thus far, as well as from a discerning analysis of the opinions and attitudes of the producers of goods for export, the following basic results have been obtained: the systems-type solutions which have been introduced up to now within the framework of the reform have not ensured the stimulation of exports to the extent required by the economy, nor have they created the foundations for introducing genuine cost-effectiveness; and this is true on the scale of the entire national economy, not just its sphere connected with foreign trade.

In a situation with worsening indicators regarding the effectiveness of foreign trade and a persistent internal imbalance, a low level and thus a system conducive to export undergoes a further, considerable decrease. When it present its "Cautionary Forecast" in June of this year, the KRG pointed out the outstanding threats in this regard and formulated several immediate proposals, a substantial part of which have recently been put into economic practice.

The pro-export orientation of the economy, mainly the processing industries, requires, however, the creation of a comprehensive system for stimulating the

growth of profitable exports. Within the framework of the works undertaken by the KRG several variants of such a system have been developed.

2. On the following fundamental questions a uniform position has been worked out:

--despite the severe imbalance between the foreign and the domestic, there is no alternative for the direct, parametrical influence on the growth of exports and their profitability in the sphere of the processing industries;

--solving the problems of foreign trade is impossible exclusively on the path of the traditionally understood system of directing this area of the economy (exchange rates, bonuses, etc.), but requires correlation with all the components of the reform's solutions (for example, financial and investment systems) as well as with the current market policy;

--it is impossible to conduct an efficacious exchange-rate policy under the conditions of a significant portion of the producers of export goods from foreign privces. In connection with this, we must return at the first juncture to the fundamental principle of expanding as much as possible the introduction of transaction prices to enterprises producing goods for export;

--the basic canon of every exchange-rate policy must be the strict observance of the rule of using a uniform exchange rate for the purposes of establishing prices on raw materials and basic materials as well as current reckoning from the export title. Standardization of pricing on raw materials and basic materials with the presently employed currency exchange rate is desirous at the highest level in that differing views have emerged as to the rate of implementing this thesis. There does exist, on the other hand, a concurrence of views that we must not transfer them in a mechanical method to retail prices. At the same time, in order to avoid auction-type situations, it is necessary to establish single-value methods for calculating the exchange rate independently of the variant;

--in an exchange-rate policy there must be a purposeful trend to honor the regulations worked out by the Commission ds. [?] on the Economic Reform that the currency exchange rate ensure a profitability amounting to 75-85 percent of the exports. The differences as to the methods and time of proceeding to the economic practice for this purpose are presented as variants in Point 3;

--in the present-day situation of the country's economy, with attention being paid to the need for anti-inflationary actions, it is not possible to influence the growth of exports exclusively by the mechanism of a true exchange rate from the viewpoint of the postulates of internal equilibrium, but what is required is the broad-based use of the instrument of temporary aid to serve as supplementary relief, foreign-exchange allowances, etc.; they must, however, stimulate a correction of profitability and not sanction any one of its levels.

3. In the face of the existing difference of opinions on the solution of other, fundamental problems, we are presenting them in the form of the following three variants:

/A. The Sub-Marginal Concept./ [In boldface]. It provides for the application of an exchange-rate ensuring 75-85 percent of the profitability of exports, while, at the same time, eliminating the unfavorable influence of this solution on the people's real incomes, with the application of one of the following methods:

--the introduction of a uniform, percentage-type product subsidy on retail prices;

--leveling off the growth of retail prices for workers by means of compensation payments from the state budget;

--applying the pricing of labor, materials, and foreign exchanges, based on the extreme relations of these means, with an exchange rate which does not require the violation of the retail-price level in effect up to the present time (and, hence, significantly lower than that mentioned above), with a leveling off of the uncalculated labor value by means of a universal, uniform percentage-type of supplementary payment for enterprises prior to funding the wage payments.

/B. The Total-Influence Concept./ [In boldface]. This concept provides for the purposeful application of an exchange rate ensuring a profitability of 75-85 percent of the exports, while recognizing that at the first juncture we must standardize the exchange-rate level applied to pricing raw materials and other materials with the exchange rate now in use in export calculations, and this must be done in a phased manner. This can be implemented either gradually or on a broad front, also either relatively rapidly or selectively, encompassing at the first juncture those raw materials and other materials which do not have a direct influence on the level of retail prices on goods in common use. This is equivalent to recognizing the necessity of applying exchange-rate supplementary payments in the appropriate area, as well as selective retail-price subsidization. It provides for separating out the results of exports, along with allowing the possibility of likewise disregarding in them the formalized exchange-rate supplementary payments. A system of stimulating the growth of profitable exports is based on the results so understood. It also provides for the influence of anti-inflationary instruments on limiting the increase in the costs of export commodities.

/C. The "Commercial" Concept./ [In boldface]. It may have the nature of fulfilling with regard to the other variants, from the viewpoint of the proposed method of establishing an exchange rate for a limited portion of the turnovers with foreign countries. It provides for a high-level establishment of the percentage of the obligatory stake of foreign-exchange sales obtained by the producers in exports to the second payments area in favor of the state, according to an exchange rate ensuring a profitability of 75-85 percent of the exports. The remainder of the foreign-exchange influence is disposed of freely by the exporters and cooperatives, including the possibility of sales at the commercial exchange rate, depending on the demand and the supply of the exchange currency in question. This concept seems to have less importance as an instrument for stimulating exports and more for ensuring greater freedom of allocating a certain portion of foreign-exchange means for imports (for solving the so-called "stoppage" problem).

According to an opinion poll of directors conducted among close to 100 enterprises on the occasion of a military inspection, a significant percentage of the institutions which have come up against import obstacles could substantially increase their production merely by being assured of the possibility of importing partial components rather than basic raw materials. This confirms the need to introduce the possibility of purchasing modest amounts of foreign exchanges at the commercial exchange rate.

4. In order to create a comprehensive system for stimulating exports, it is likewise absolutely necessary to carry out appropriate changes in the operating systems of enterprises engaged in foreign trade. All things being taken into consideration, they depend on the following:

--the sequential implementation, as provided in the reform, of the fundamental principle of the freedom of choosing the central office of foreign trade by enterprises which are producing for export, in conjunction with adopting the function of independently conducting turnovers with foreign countries;

--the introduction of quota-type, import-differentiating profit margins, depending on labor-intensiveness;

--the implementation of export profit margins, aiming to bring them closer to the actual commercial costs.

5. Right along with solving the fundamental problems presented above, there exists the need to complete work on the instruments which in its "Cautionary Forecast" the KRG reckoned as immediately necessary (i.e., foreign-exchange funds and tax relief).

The operational area for foreign-exchange funds should be expanded, while, at the same time, limiting the central distribution of means for imports, including those based on the operating programs. There is an equally important need to head in the direction of a more rational economic management of these funds by means of their interest payments as well as by expanding their foreign-exchange credit on the basis of that portion of it which will be maintained in the form of deposits in the Commercial Bank. Right along with the completion of work on the mechanism of foreign exchange, prices, and supplementary payments, the criterion which has been in effect up to now for establishing the allowance rates on foreign-exchange funds based on the imports-intensiveness of exports ought to be replaced by the criterion of exports-effectiveness. This means that the foreign-exchange funds will be replaced by a system of obtaining foreign-exchange means for imports on the basis of profits from exports and the foreign-exchange credits connected with this.

With regard to the tax-relief measures which have recently been introduced for producers engaged in export, it is equally important to improve the parameters of economic calculation, to head in the direction of replacing the quantitative criterion of their application (the value and growth of exports) by the criterion of effectiveness (profit from exports). This solution, independently of sectorial ones, would increase the strength of stimulating exports within the framework of the overall financial results.

Material Supplies

Under the conditions of deep shortages of supplies, the method of allocating raw materials and intermediate products is one of the main causes of retaining on a large scale the counterproductive, orders-distribution mechanisms and admittedly auction-type procedures in the economy. The relatively far-ranging proposition for economizing the sphere of supply turnover would facilitate the liberalization of prices in the supply market, while protecting, in the absolutely necessary field, the consumer market with the aid of an appropriate system of subventions and controls. The already-existing introductory propositions in this matter must now become the object of exact analysis and discussion so that they may eventually become the basis for more radical changes within the supply sphere, beginning in 1984.

At the same time it must be emphasized that, even in case the concept of the far-ranging liberalization in the sphere of supply turnover is applied, it seems quite unrealistic that we could completely do away with controls on raw materials, other materials, and foreign-exchange means, beginning in January 1984, as is provided in the law on planning. It is inevitable, therefore, that this law be brought up to date during the coming year.

In 1983 the following intermediate and limited methods for correcting the material-supply situation are proposed:

1. Introduce contests to maintain supplies for a given production. There should be competition to supply those enterprises producing those very products where the principal criterion for allocation would be the minimalization of material outlays to obtain the same production effect on the domestic market.
2. The number and area of the operating programs have departed far from the initial proposals in this sphere. As a result, the supply procedure, as announced within the framework of the programs, on more than one occasion, cut short the general possibility of supplying the country; this meant that this function had to be carried out with a substantial amount of distortion.

It is proposed that in 1983 there be a fundamental limitation on the number and area of the operating programs and that they encompass only a few, narrowly formulated tasks, i.e.:

- a portion of the spare parts and tires for agriculture;
- children's clothing and footwear;
- medicines and medical supplies.

3. In the balances of the central distribution of raw materials and other materials a modest portion of supplies should be allotted; these would be sold to any customers at the contract prices corresponding to the equilibrium of demand and supply. Eventually we will be able to establish a certain margin for the production of raw materials and other materials at the producer with authorization to sell them off at a contract price.

The Council's questionnaire confirmed the vital interest of many enterprises in this type of solution, all the more so in that there occur cases of selling goods included in the mandatory agency (middleman) service in addition to the mandatory distribution system. In a certain sense, therefore, it is a matter of legalizing a practice which is already in existence.

4. The central offices of marketing and supply which are working out the distribution of the controlled means of production must heed the explicitly formulated and, to a certain degree, objectified, criteria of the division. The principal ones pertaining to the foundations of the division should be contained in the annual plan.

5. The central offices of material supply should become independent of the branch ministries. The functions of the fundamental organ with regard to the central offices should be handled by the Bureau of Material Economic Management.

Monopolies and Oligopolies

Of great importance for enhancing the role of the market is guiding the activity of enterprises in the degree of competition. The lack of competition and the monopolization of the market causes substantial economic losses. We observe them likewise in our economy. Monopolies and oligopolies are conducive to a situation whereby an increase in profits may be attained without an increase in production or limitations placed on costs. The incentives are weak to introduce innovations or to modernize production lines. There are no incentives operating to ensure the production of the appropriate quality. During the first few months of the economic reform's operation many disturbing phenomena in these areas came to the fore. There are associations which have come into being of a branch-type nature, and they distinctly facilitate the rise of monopolistic situations, i.e., both pure monopolies as well as oligopolies. The majority of the associations mention explicitly among their statute purposes the implementation of monopolistic practices such as the establishment of prices, the sharing of production and sales markets, uniform policies of deliveries and supply, etc.

In the matter of combatting monopolization the Council does not have any sufficiently matured proposals. Moreover, we are taking into account the fact that under the present-day conditions, elimination of monopolistic situations and practices is not possible, and especially not in a country which cannot conduct an open economy. It is no less advisable, however, to mention at least a few of the means, which have not been taken advantage of so far, in enabling us to limit the consequences and results of monopolization. They are as follows:

- supporting associations of enterprises encompassing the successive phases of transformation (vertical integration), rather than branch-type associations;
- supporting the membership of enterprises to several associations;
- revising the statutes of enterprise associations and even dissolving those branch associations whose existence is not sufficiently grounded from the

viewpoint of any other important economic considerations, for example, by tight technical ties, rationalization of production scale, or the need to simplify competition in foreign markets;

--making it possible for enterprises engaged in goods turnover (eventually also enterprises engaged in delivering supplies for turnover) to conduct foreign trade with both areas;

--protecting the domestic market from monopolistic practices by means of imposing intermediate taxes and supplementary payments in trade as well as applying quota-type profit margins;

--increasing the producers' area of responsibility with documented guarantees and securities;

--solving the possibilities of introducing the institution of charging prices by the customer;

--separating the central supply offices from the producers;

--rapid preparation and introduction of anti-monopoly and bankruptcy legislation.

There exists the fear that compulsory or voluntary industrial associations could without foundation develop compensatory calculations, covering up poorly effective enterprises. This matter requires research by the proper organs.

Also requiring discussion is the present scope of monopoly and monopson [?] in agriculture and agricultural services. Likewise of particular importance is the specific matter of the quality of heavy equipment for farming; it requires more precise criteria for selection.

The Tax System and its Influence on Motivation

A critical evaluation of the tax system has brought to light the following basic defects:

1. Under the conditions of supply difficulties and complications--enterprises, in the nature of things, have a tendency to resort to raising prices as a means of increasing profits. The tax system has not overcome this. Market sales taxes are a weak stimulus for enterprises to increase production, reduce their own costs, and improve quality (while tolerating, at the same time, a significant increase in prices). It functions in this way so that the increase in profits and the level of profitability will be paid, despite the strongly progressive taxes, income taxes, and obligations to FAZ, only up to a certain ceiling trap. This ceiling trap, under the conditions of a lack of market equilibrium and, hence, a very inelastic demand, can be reached by the easiest road, that is, by means of raising prices. Activating the most difficult reserves (increasing production, lowering costs) has, therefore, ceased to pay for an enterprise. For profits and indeed attained, on the whole, by means of the budget by means of the progressive tax rates.

2. They do not become a factor facilitating market equilibrium and have only a very slight influence on the structure of incomes and demand.

3. They strengthen the state's budget in funds by an unsatisfactory manner; an expression of this is, among other things, the introduction of a supplementary stabilization tax, along with taking over a considerable portion of the amortization by the budget.

These defects can be at least partially removed by introducing the following changes:

1. Make a gradual transition to measuring the income tax in accordance with a linear formula, rather than a progressive one, eventually providing relief for enterprises with low profitability. In 1983, by beginning to move in the direction outlined above, we should at least do away with the highest divisions of the tax, adopting its maximum rate at the 70-percent level.

We must likewise research the grounds of the proposal for differentiating the income tax, depending on whether the profits are of the price-speculation type or also of the effectiveness type (increase in production, lowering of costs). With such a solution there would be a significantly stronger influence motivating a differentiated tax, depending on the sources of profit growth. We must, however, predict difficulties with its implementation, difficulties which are methodological and organizational in nature. The methodological difficulties are involved with defining the methods for isolating the price-speculation profit; the organizational difficulties would result from the necessity of inaugurating services to verify and measure the taxes.

2. Income-tax reform must be combined with a fundamental increase in the role of indirect taxes, above all, that of the turnover tax. Leaving aside the effect for the budget, we are talking here, in the first place, about making it difficult for enterprises to have the opportunity to increase their profits by the path of excessive price advantages in areas where they are in a monopolistic position. In the second place, these taxes make it possible indirectly to guide the structure of consumption, and, above all, they give an elastic center to the possibility of influencing the remaining sector of incomes among the consumer groups with various potentialities. The rates of the turnover tax should be differentiated much more than they are at present, and the maximum rate should be increased considerably.

3. We must modify the obligation to FAZ in such a way as to limit its antimotivating action and, at the same time, with its aid, to overcome the emergence of excessive disproportions in the payments among various enterprises and, in case of obligatory rewards from profits, to control its share to individual rewards and development funds. For these purposes the following measures are proposed:

--limiting the maximum obligation to FAZ to 100 percent; moreover, the maximum rate for agriculture should be even lower, taking into account the influence of climatic variations on labor-intensiveness;

--the nonobligation for this tax on enterprises which have average wage payments, lower than average in branches or in the local labor market.

A controversy has arisen, however, regarding a solution affecting the use of relief measures for the increase in the volume of production, in accordance with Resolution No 186 of the RM [expansion unknown], dating from August of this year. Three positions have been outlined here below:

--supporting the resolution because of the anticipated growth of production thanks to it;

--supporting the recognition of this type of relief, though not in an automatic manner but rather selectively, with regard to production which is especially desired, although this means setting in motion the well-known mechanism;

--criticizing the above-mentioned resolution because of the introduction in this manner to the motivating system of gross measuring rods, as well as removing the attained results of the so-called base, which, in the case of heterogeneous production, would create far-ranging possibilities for accounting manipulations.

Likewise controversial is the question of maintaining tax-relief measures for the purpose of reducing difficulties. For there exists the fear the reducing difficulties under the present conditions in the cases of certain enterprises (those engaged in export and those which are carrying out changes in the profile of production) could be in sharp contradiction with the growth of production.

The decrease of influences on the FAZ cannot be an argument against the proposal advanced above, that the role of the FAZ in the shifts of the labor force has moved to the background. On the contrary, an essential role has remained for the FAZ in forming the section for consumer funds and the development fund.

4. It is proposed that work be undertaken on replacing, in the distant future, the income taxes and FAZ obligations which have been in use up to now--by a value-added tax as well as a progressive income tax to be paid by the actual individuals (the entire concept of changes in the tax system is contained in the work by the author U. Wojciechowski), despite the emerging difficulties of a social and methodological nature, particularly in this second instance.

The transitional move toward more stimulating forms of taxation manifests a profound contradiction between the motivational system and the lack of equilibrium: in order to have an effect, we must "give it a chance to produce," but, at the same time, we must eliminate the excessive pressure of inflation, which has a negative effect on the motivating function of production.

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SPECIAL CURRENCY EXCHANGE RATES PUBLISHED

Table No 52/82

Warsaw TRYBUNA LUDU in Polish 13 Dec 82 p 7

[Text] Announcement of Exchange Rates Table No 52/82, effective 13 December 1982, by Stanislaw Majewski, president, Polish National Bank, on 13 December 1982.

I. Foreign-currency exchange rates in zlotys for countries of the first payments area [socialist countries] for commercial and noncommercial payments remain unchanged.

In purchases of travelers' checks for rubles, issued by the USSR Foreign Trade Bank and payable outside the USSR in the currency of the country where cashed, an exchange rate of 11,884.88 zlotys per 100 rubles is applied.

II. Foreign Currency Exchange Rates in Zlotys for Countries of the Second Payments Area [Capitalist Countries].

[Table on following page]

Exchange Rates Table No 52/82

Country	Curr Symb	Currency	Foreign Exchange		Money		Average
			Purchase	Sales	Purchase	Sales	
			4	5	1	2	6
Saudi Arabia	771	1 rial***	24.80	25.04	--	--	24.92
Australia	781	1 Aust. dollar	82.35	83.17	81.10	84.42	82.76
Austria	786	100 schillings	503.81	508.87	496.21	516.47	506.34
Belgium	791	100 francs	180.63	182.45	177.91	185.17	181.54
Denmark	792	1 kroner	10.08	10.18	9.93	10.33	10.13
Finland	780	1 markka	16.02	16.18	15.78	16.42	16.10
France	793	1 franc	12.52	12.64	12.33	12.83	12.58
Greece	724	100 drachmas	122.20	123.42	105.91	125.27	122.81
Spain	785	100 pesetas	67.28	67.97	66.28	68.98	67.63
Holland	794	1 florin	32.14	32.46	31.65	32.95	32.30
India	543	100 rupees***	882.57	891.45	--	--	887.01
Ireland	782	1 pound***	118.02	119.20	--	--	118.61
Japan	784	100 yen	35.21	35.57	34.68	36.10	35.39
Yugoslavia	718	100 dinars	124.01	125.25	107.48	127.12	124.63
Canada	788	1 Canad. dollar	68.79	69.49	67.76	70.52	69.14
Kuwait	770	1 dinar***	293.89	296.95	--	--	295.37
Lebanon	752	1 pound	21.58	21.80	21.26	22.12	21.63
Libya	651	1 dinar***	287.93	290.83	--	--	289.38
Luxembourg	790	100 francs	180.63	182.45	177.91	185.17	181.54
Norway	796	1 kroner	12.35	12.47	12.16	12.66	12.41
Portugal	779	100 escudos	91.92	92.84	79.67	94.23	92.38
FRG	795	1 mark	35.45	35.81	34.92	36.34	35.69
United States	787	1 dollar*	85.26	86.12	83.98	87.40	85.63
Switzerland	797	1 franc	41.67	42.09	41.04	42.72	41.88
Sweden	798	1 kroner	11.68	11.80	11.51	11.97	11.74
Turkey	627	100 pounds	53.28	53.82	46.18	54.62	53.55
Great Britain	789	1 pound**	138.41	139.81	136.33	141.89	139.11
Italy	799	100 lira	6.13	6.19	5.32	6.28	6.16

* Valid also in clearing accounts with the following countries: Bangladesh, Brazil, Ecuador, Greece, Iceland, Kampuchea, Colombia, Lebanon, Pakistan, Peru and Turkey.

** Valid also in clearing accounts with the following countries: Nepal and Pakistan.

*** The Polish National Bank does not purchase money in these currencies.

Corrections to Table 52/82

Warsaw TRYBUNA LUDU in Polish 14 Dec 82 p 7

[Text]

I. Published below are corrections of errors which appeared in Table 52/82 published 13 December 1982.

II. Foreign-Currency Exchange Rates in Zlotys for Countries of the Second Payments Area [Capitalist Countries].

Country	Curr Symb	Currency	Foreign Exchange		Money		Average
			Purchase	Sales	Purchase	Sales	
			4	5	1	2	
Kuwait	770	1 dinar	293.85	296.85	--	--	295.37
Lebanon	752	1 pound	21.58	21.80	21.26	22.12	21.69
FRG	795	1 mark	35.45	35.81	34.92	36.34	35.63
United States	787	1 dollar	85.26	86.12	83.98	87.40	85.69
Sweden	798	1 kroner	11.68	11.80	11.51	11.97	11.74

CSO: 2600/155

SPECIAL CURRENCY EXCHANGE RATES PUBLISHED

Warsaw TRYBUNA LUDU in Polish 20 Dec 82 p 7

[Text] Annoucnement of Exchange Rates Table No 53/82, effective 20 December 1982, by Leszek Urbanowicz, for the president, Polish National Bank, on 20 December 1982.

I. Foreign-currency exchange rates in zlotys for countries of the first payments area [socialist countries] for commercial and noncommercial payments remain unchanged.

In purchases of travelers' checks for rubles, issued by the USSR Foreign Trade Bank and payable outside the USSR in the currency of the country where cashed, an exchange rate of 11,957.12 zlotys per 100 rubles is applied.

II. Foreign-Currency Exchange Rates in Zlotys for Countries of the Second Payments Area [Capitalist Countries].

[Table on following page]

Exchange Rates Table No 52/82

Country	Curr Symb	Currency	Foreign Exchange		Money		Average
			Purchase	Sales	Purchase	Sales	
			4	5	1	2	
Saudi Arabia	771	1 rial***	25.01	25.27	--	--	25.14
Australia	781	1 Aust. dollar	82.50	83.32	81.25	84.57	82.91
Austria	786	100 schillings	497.94	502.94	490.43	510.45	500.44
Belgium	791	100 francs	178.83	180.63	176.14	183.32	179.73
Denmark	792	1 kroner	9.95	10.05	9.80	10.20	10.00
Finland	780	1 markka	15.99	16.15	15.75	16.39	16.07
France	793	1 franc	12.35	12.47	12.16	12.66	12.41
Greece	724	100 drachmas	120.64	121.86	104.56	123.68	121.25
Spain	785	100 pesetas	66.32	66.98	65.32	67.98	66.65
Holland	794	1 florin	31.81	32.13	31.33	32.61	31.97
India	543	100 rupees***	884.06	892.94	--	--	888.50
Ireland	782	1 pound***	116.77	117.95	--	--	117.36
Japan	784	100 yen	35.06	35.42	34.54	35.94	35.24
Yugoslavia	718	100 dinars	120.72	121.94	104.63	123.76	121.33
Canada	788	1 Canad. dollar	69.68	70.38	68.63	71.43	70.03
Kuwait	770	1 dinar***	295.95	298.93	--	--	297.44
Lebanon	752	1 pound	21.78	22.00	21.45	22.33	21.89
Libya	651	1 dinar***	290.51	293.43	--	--	291.97
Luxembourg	790	100 francs	178.83	180.63	176.14	183.32	179.73
Norway	796	1 kroner	12.11	12.23	11.93	12.41	12.17
Portugal	779	100 escudos	92.50	93.42	80.17	94.82	92.96
FRG	795	1 mark	35.02	35.38	34.50	35.90	35.20
United States	787	1 dollar*	86.02	86.88	84.72	88.18	86.45
Switzerland	797	1 franc	41.15	41.57	40.53	42.19	41.36
Sweden	798	1 kroner	11.60	11.72	11.43	11.89	11.66
Turkey	627	100 pounds	53.76	54.30	46.60	55.11	54.03
Great Britain	789	1 pound**	138.75	140.15	136.66	142.24	139.45
Italy	799	100 lira	6.07	6.13	5.26	6.22	6.10

* Valid also in clearing accounts with the following countries: Bangladesh, Brazil, Ecuador, Greece, Iceland, Kampuchea, Colombia, Lebanon, Pakistan, Peru and Turkey.

** Valid also in clearing accounts with the following countries: Nepal and Pakistan.

*** The Polish National Bank does not purchase money in these currencies.

CSO: 2600/166

RAW MATERIALS PRODUCTION, DEVELOPMENT OUTLINED

Coal Reserves Situation

Warsaw SZTANDAR MLYDYCH in Polish 5-7 Nov p 5

[Article by Marian Twarog: "King Coal"]

[Text] Poland lives on coal. The excessively persistent overlooking of this fact made many people consider it just a propaganda slogan. It was only when it turned out that the Polish economy was collapsing because of coal that the fringe of agitators fell because of the fact. Will it rise because of it?

What are the current possibilities for production and the conditions for the development of mining hard coal? According to the resources balance drafted by the Central Geology Office, we currently have 102 billion tons of prospective hard coal resources, 63 billion tons of documented recoverable reserves, and about 12 billion tons of industrial reserves, which we are mining. Is that a little or a lot?

Certainly the sizes of these reserves are considerable. They suffice not only for current needs but also for the anticipated increase in extraction during the next few years, but the inadequate degree of the accuracy of geological explorations means we do not have such great reserves of what we are most interested in, industrial reserves. Assuming in the years to come an increase in annual hard coal extraction to about 200 million tons, we must assume also that these reserves are going to decline on us at a rate of 250 million tons per year. This means that we will have enough of this coal for 48 years. But for such a subsector of industry, this is a very short period.

Reserves of Hard Coal in Billions of Tons

Coal Basin	Long-Range Reserves	Recoverable Reserves	Industrial Reserves
Upper Silesia	50	54.7	
Lower Silesia	0.4	6.8	
Lublin	52	0.4	
Total	102.4	61.9	12.3

As we can see from the table, both developed and long-range (prospective) resources will determine whether the Upper Silesian Coal Basin will continue to be the major mining center for hard coal in the next 40-50 years. The Lower Silesian Coal Basin is declining substantially (1.5 percent of total production), but the Lublin Coal Basin, with its substantial reserves, although they have not been completely surveyed, represents only a potential basis for Polish mining.

Poland is one of the few countries in the world in which coal mining has increased during the entire postwar period systematically, in 1979 reaching the highest level, 201 million tons, and during the past 20 years extraction has doubled.

Prof Adam Szczurowski says: "We are therefore the country which is exploiting its deposits the most intensively.." The so-called deposit exploitation index, or amount of industrial reserves in millions of tons per million tons annual production is 63 in Poland, but, for example, 163 in the Soviet Union, 199 in the FRG, 202 in the United States, and 417 in Great Britain. Hence, in order to insure what is called adequacy of reserves, we must fix things so that the annual rise in industrial reserves reaches at least 250 million tons.

This means that each year at least one mine with great reserves should be turned over for mining. Let us remember that the newest Polish mine, the ZMP mine in Zory, was put into operation 3 years ago.

Taking these facts into account, the Association of Mining Engineers and Technicians analyzed two variants for the structuring of hard coal production, depending on the size of investment resources. The first variant was based on the assumption that for 1983-1985 mining would receive the same level of investment resources as in 1981-1982. The other variant, on the other hand, assumes that these resources will increase by 30 percent, which should provide for both the execution of tasks in active mines and a suitable rate of work in the mines currently under construction.

After in-depth analysis it turned out that the adoption of the first variant would create a decline in extraction from 630,000 tons per day in 1983-1985 to 520,000-540,000 tons in 1986-1990. This decline results both from investment restrictions and the lack of suitable technologies for working the thin and steep seams and limitations imposed by environmental protection. Then there is the slowing of the expansion rate on active mines and even the suspension of construction on new mines, like the Budryk, Warszowice, and K-2 Mines.

On the other hand, the second variant, through the construction of seven new mines, continuation of expansion of 14 mines, and the maintenance of production capacity in 49 mines, will permit the attainment of annual production levels of 630,000 tons in 1983 rising to 650,000-680,000 tons in 1990.

In this situation SIiTG [Association of Mining Engineers and Technicians] thinks that we should select the latter variant for implementation, the

one that directs 160-170 million tons of coal to domestic needs and 30 million tons to export. This will require outlays of 105 billion zlotys for investments in 1983-1985 and 160 billion in 1986-1990.

Annual Hard Coal Extraction in the Years 1983-1990

Variant	Workdays/Week	Annual Extraction in Millions of Tons		
		1983	1985	1990
First	six	136	136	153-159
	five	161	161	133-138
Second	six	136	198-192	192-201
	five	161	162-166	166-174

[In box] During the first 3 quarters of 1982, miners extracted 142.5 million tons of hard coal, which means over 20 million tons more than during a similar period last year. [end of box]

Hard coal will be extracted in the future under geological-mining conditions which are different from those presently being encountered in most mines. The shift of extraction in the southeastern region of the Upper Silesia Coal Basin and the development of mining in Lublin basin have created many new problems stemming from the need to adapt extraction technology to natural conditions, because these resources, compared to those of mines already in operation, are characterized by worse conditions resulting many from the fact that the seams are found at deeper levels. This applies mainly to conditions of temperature, presence of gas, tendency towards crumps, and the geological properties of the rock. It will also be necessary to strictly enforce regulations regarding the protection of mining personnel, to which are related the reduction of industrial and mining hazards, lower water desalination, reduction of content of sulfur in commercial coal, and unwasteful production.

Regarding the difficulties anticipated, there is no way to get around the factors raised by SIITG which today are conditions to the effectiveness of subterranean coal use. First of all we might mention more correct management of the deposits, because the extent to which they have been exploited during the past 15 years has declined. This will be furthered by the elimination of losses caused by the failure to remove support pillars, failure to collect what is left of seams, between seams, or in thin seams which have been tectonically disturbed or put on a slant.

[In box] World coal reserves are estimated at 100 years, compared to 17 years for crude oil and 19 years for natural gas. [end of box]

For the moment Polish mining has access to proper solutions for comprehensive mechanization to take coal from seams 1.0-4.5 meters thick on a slant of up to 35 degrees, taken on a fall, but there is no effective technology

for exploiting thin seams for seams thicker than 4.5 meters, for working seams by using a hydraulic floor, or for working irregular fields and support pillars that are left or remaining coal in seams.

[In box] Last year Poland was the world's fourth largest coal producer, a position it has maintained for a number of years, but it was only sixth in exports, losing second place it used to hold, traditionally following the United States. [end of box]

Prof. A Szczurowski says that it would be possible to eliminate a host of inconveniences stemming from the current way that extraction is run, if we were to introduce nonpillar extraction from the very start of mining a new mine. Of course this would call for new model solutions and the introduction of exact technical and economic studies.

Well-known reserves and possibilities for increasing extraction are also to be found in the better utilization of effective working time at the walls, especially the worktime of cutter-loaders, and in making auxiliary work less labor intensive. Unfortunately past programs for implementing so-called minor mechanization have not been carried out, not for lack of suitable design solutions but because of the failure to start production of appropriate small-scale machinery and equipment.

As we can see from this superficial review, despite many technical achievements on a world level, much still remains to be done, and although it is true that during the past few years domestic designs and technological solutions have not been fully utilized, nonetheless there is an urgent need to repeat the analysis of research-design work with a view to meeting these needs.

[In box] There are 66 hard coal mines active in our country, with 14 in the course of reconstruction and expansion, 48 at a stable extraction level, and four with declining production. [end of box]

In our presentation of the conditions underlying the development of hard coal mining, we must not fail to mention its processing too, at least at the end of the 20th Century. Research on new processing methods is even treated as nearly equivalent to work on the use of nuclear power, in countries with tremendous gas and crude oil resources, like the USSR and the United States.

Prof Roman Zakaczewski says that the large coal reserves and near-the-surface crude oil and gas reserves should guide the strategy of economic development and steer it to expanding the utilitarian effectiveness of this our basic source of energy. Unfortunately, past economic practice has assigned priority only to extraction growth, giving minimal attention to technical progress in processing. Hence we wasted past possibilities stemming from the processing of coal derivatives.

[In box] Coal represents nearly 78 percent of the fuel consumption structure, the rest being gas, crude oil, and derivatives. Elsewhere in the

world these ratios are as follows: coal -- 30 percent, gas and crude oil -- 60 percent. [end of box]

Thus in coming years hard coal should be treated more as a raw material for chemical and power processing, in order to upgrade the efficiency of its use through conversion to high-grade power sources: gas, liquid guels, and high-grade solid fuels. This will not only help improve its power efficiency but will also prevent pollution of the environment and permit us to obtain certain amounts of scarce power sources.

Research on coal processing in Poland has a long tradition and up until now has pertained mainly to the production of liquid and smokeless fuels.

It is the opinion of Magister Inzynier Walter Matula that both the raw-materials situation and our possibilities for buying gas unequivocally determine that our most urgent task is the industrial implementation of coal gasification. This is also important because of our need to supplement our reserves of gas, because by 1985 our shortage is projected to reach about 3 billion cubic meters of high-methane gas and to implement one of the basic elements of the coal liquefaction process. The most rational way to obtain gas is through gasification of low-quality coal, sulfur- and ash-bearing coal which is bad for the environment when burned directly.

[In box] In our country there is coal in three coal basins: the Upper Silesian, Lower Silesian, and Lublin Coal Basins. The first presently provides more than 98 percent of all the coal extracted, with the rest coming from the Lower Silesian Coal Basin. The Lublin Coal Basin is in its initial phase of geological exploration. [second box] The United Nations EEC Coal Committee has 23 countries on it, all the important coal producers and importers of Europe, the United States, Canada, and Australia. [end of box]

Hence, we must return to the concept already worked out and the preparations adopted for construction of the Experimental-Industrial Coal Gasification Plant [DPZZW] in Libiaz and designate the gas obtained thereby for the production of ammonia (fertilizer) and methanol. The latter can be used successfully as an additive to gasoline mixtures. It has been calculated that the addition of 300,000 tons of methanol (including an emulsifier) to motor fuels -- this amount can be produced on the basis of the gas from the DPZZW -- will reduce crude oil processing for gasoline by about 2 million tons.

Because this is a difficult, expensive task, in the more distant future we should begin developing technologies and setting up production of liquid fuels from coal, mainly hydrogenated fuels like gasoline, diesel oil, and jet fuel. We should also note the possibilities for using products and semifinished products from coal liquefaction in the production of electrode-furnace and blast-furnace coke, commercial carbon black, sorbents, and active carbon.

[In box] In the Upper Silesian Coal Basin alone more than 3 billion tons of coal and rock have been extracted from underground, thereby creating some instability in the upper layer of the earth's crust. [end of box]

At the present stage of economic development, therefore, the coal conversion directions whose technologies have industrial applications should be given priority, that is, the technologies related to the production of coke and the processing of liquid carbon derivatives, along with the technologies of stoking coal gasification of coal with high levels of sulfur and ash.

[In box] The largest numbers of accidents are not caused by cave-ins, crumps, explosions, fires, or other natural dangers. Nearly half of them are related to the machinery and equipment working underground. [end of box]

The Polish economy has collapsed as though struck by lightning, partly because of the temporary failure of coal extraction. Will it rise through it? Those 142.5 million tons of hard coal extracted during the first 3 quarters of this year and the growing exports are cause for careful optimism. If only when stability is reached in this area of the economy people do not forget all about what Polish engineers and technicians today are noticing and reject actions to insure not only a rise in extraction but real technical supremacy for our mining in the world.

Coking Industry Future

Gdansk GLOS WYBRZEZA in Polish 12-14 Nov 82 p 3

[Article by Marian Ryglewicz: "Future of Polish Coking Industry"]

[Text] Workers in the chemical plants processing coal have been uneasy for years about the increase in coal extraction accompanied by neglect concerning its rational use. For example, postulates and suggestions in this area have been presented to party activists at many meetings.

Undertaking initiative the party organizations of the Zabrze Coking Combine along with the Institute for the Chemical Processing of Coal and the Koksoprojekt Design Office in Zabrze drafted a short report on the subject of the full utilization of existing production capacity and the further development of the coking industry. This report was presented, for example, at the Ninth PZPR Congress. It was also disseminated among workers of other plants and scientific-research units.

Important and Undervalued

The coking industry is an industry of key importance to the economy (as the producer of coke, gas, and coal-derived products) one which determines the working of the metallurgical industry, engineering industry, chemical industry, construction and building materials industry, municipal

economy, and agriculture, but it has not been properly appreciated in our country since the war.

Only a small share (about 14 percent) of the coal extracted in our country is sent for chemical processing, but the mean world index is about 25 percent (for example, Japan, which imports about 60 million tons a year, produces 45 million tons of coke, and the USSR processes more than 100 million tons of coal per year).

At the present time only about 25 million tons of coal in our country is sent for coking, while 130 million tons is burned in its traditional form. There is a further coke production decline from 19.3 million tons in 1980 to 17.3 million tons in 1981 and (planned) 16.5 million tons this year.

Rationalization

On average, from one ton of coal sent for coking we get 760 kilograms of coke, 300 cubic meters of coking gas, 32 kilograms of crude tar, 8 kilograms of benzol, 7 kilograms of ammonium sulfate. Each year in our country we use about 30 million tons of coal for household heating. At least two-thirds of this amount can and should be replaced by coke.

This way the national economy can save 6.5 million tons of coal and obtain about 2 billion cubic meters of gas, which is scarce -- the current shortfall is about 1.5 billion cubic meters -- along with very valuable coal-derived products: about 500,000 tons of tars and benzol.

The coal coking process and closely related processing of coal-derived products feature a high level of economic effectiveness. The current price of coke on international markets is nearly double the price of coal, and the coal-derived products obtained in the coking plants can be processed and sold at very favorable prices. The funds thus obtained and saved would make it possible not only to maintain existing production capacity but also expand and modernize it. It is worth adding here that the expansion and modernization of the coking industry do not depend on deliveries from second payments area countries [capitalist countries] but on deliveries from first payments area [socialist] countries and do not exceed a few percentage points of investment value.

Future of the Coking Industry

The problems presented in the above-mentioned draft and briefly discussed here were recently the subject of discussion at Zabrze Coking Combine during a meeting of the directors and secretaries of the party plant committees of 23 plants and institutions related to the chemical processing of coal and representatives of leaders in the three interested ministries: mining and power, metallurgy and engineering industry, and chemistry and light industry, along with the Planning Commission of the Council of Ministers and party officials. During the discussion it was emphasized that the current domestic coal base allows for the production of 40 mil-

lion tons of coke per year and that efforts should be made to take advantage of this potential.

Owing to the current management situation and the dispersion of the branch's potential among three ministries, however, it is necessary to integrate and coordinate the actions of this subsector of industry in order to make the greatest possible use of the possibilities to be found there. A request was also made that the chairman of the Planning Commission of the Council of Ministers create a working group to take up the drafting of government decisions concerning the chemical processing of coal in Poland. A draft of such a document is to be completed by the end of this year and presented to a party initiative group and interested working forces for their opinion.

For the moment it is certain that the rational exploitation of Polish coal can create new economic possibilities for our country.

Uncertain Sulfur Industry Future

Warsaw SZTANDAR MŁODYCH in Polish 12-14 Nov 82 p 5

[Article by Malgorzata Pokojaska: "Polish Variant of Hope: Uncertain Future of Coal"]

[Text] There is plenty of sulfur in Poland. It represents nearly 40 percent of world reserves, and we hold third place in extraction, second in exports. At the moment, according to specialists, these exports are profitable. The only problem is to maintain the positions we have reached with difficulty.

In sulfur mining today people are seriously talking about three mines: Jeziorek, Machow, and Grzybow. A certain old miner said ironically about a fourth experimental mine, the Basznia mine, that they get as much sulfur out of it as they sweep up off the floor of the Jeziorek mine.

The mine in Jeziorek has an annual output of 3.2 million tons of sulfur. Figures for the other mines are as follows: 1.3 million tons at present for Grzybow, 0.3 million for Machow, and 20,000 tons for Basznia. This is 4.8 million tons altogether. Two years ago production exceeded 5 million tons. Forecasts for the immediate future do not expect this record to be beaten. On the contrary, total extraction will decline, because the production capacity of the Grzybow mine will be less, owing to the fact that the reserves have already been substantially depleted.

If nothing changes in 1983 we are expecting a decline in extraction to 4.75 million tons, and in 1990, to 4.35 million tons. Against this background a question arises as to whether we should prevent this decline at all cost. What are the conditions for maintaining or increasing production?

Curve Downward

The sulfur production decline, which after all is already happening, is the result not only of the fact that the raw material reserves are being exhausted in the Grzybow mine, which is understandable -- the life of every mine is limited -- but also of the Machow mine's failure to reach full capacity.

Today Machow is the only open-cast mine. Its construction began in 1963. There were troubles here from the beginning. The basic machinery for taking away what is called the overlay, the layer of earth under which the sulfur is located, did not operate properly. The lack of proper equipment led to extensive interruptions in earthwork in 1978-1979. In 1980 reconstruction was begun on the mine, and this took outlays in the millions. As the result of the reconstruction Machow is supposed to produce 0.6 million tons of sulfur per year, but for the moment it is only providing 0.3 million tons, and the cost of extraction here is several times that anywhere else.

The question arises as to what error, besides errors in machine design from 20 years ago, were committed in bringing the Machow mine to life. It is worth knowing that 90 percent of the sulfur extracted in Poland is taken using the underground melting or hole method. In Machow this was replaced by the open-cast method. The first sulfur mine in the Tarnobrzeg Basin, the Piaseczno mine, also an open-cast mine, proved successful, and began the great sulfur era at the end of the 1950's. Machow, which was supposed to replace it and expand production on a broader scale, still is not operating well.

The use of one of the two extraction methods requires the fulfillment of specific conditions. For the underground melting method, the overlay must be at least 75 meters thick. It is a question of building up high enough hydrodynamic pressure in the deposit. On the other hand, the open-cast method is profitable for working deposits not more than 75 meters underground. At Machow the latter possibility was selected, although the underground melting method could be used just as well, if we were to use the criterion of the thickness of the overlay, especially when the fact that the Machow deposit is not more than a dozen and some meters thick suggested little success for effective extraction. At the Piaseczno mine the ratios between the thickness of the overlay and the thickness of the deposits were far more favorable, 40 meters and ten meters, respectively.

So why was the open-cast method used in the Machow mine? The decision is even more questionable given the fact that not long afterwards, in 1966-1967 the underground melting method was used with success in the Jeziorek and Grzybow mines. So, was it not known earlier? Yes and no. Throughout the world the hole method had been used for decades. An American engineer patented it in 1915. But in 1963 in Poland it was considered too novel and untried. It was not until 3 years later that the underground melting method was adapted to local

conditions. The experiment proved successful, and actually this date should be considered the beginning of the great sulfur era. If it were not for the hole method, extraction in Poland today would not have reached nearly 5 million tons.

Despite the fact that the underground melting method is relatively energy-intensive -- it consists of melting the sulfur directly in the deposit and extracting it at the surface in solid form -- its application overall is proving far more profitable than sulfur ore extraction using the open-cast method. The first reason is that the open-cast method requires the removal of a tremendous amount of earth. The balance-sheet is more favorable when the layer is thin in relation to the thickness of the deposits. The second reason is simply that the sulfur production process does not end with the extraction of the sulfur ore. At one time at Machow processing plants too were built which, for well-known reasons, today are running at half steam, which further adds to production costs.

Nonetheless, whether we like it or not, the Machow mine will continue to exist over the next 20 or 30 years. Let us hope that finally it will increase its extraction to the size projected in the plans, but even then this will not make up in any real way for the production decline of the mine in Grzybow. To this end we need a new mine with an extraction capacity of about a million tons of sulfur per year. The cost of such an investment is estimated to be on the order of a few dozen billion zlotys. Is it absolutely essential?

Reduce Exports?

More than a million tons of the nearly 5 million tons extracted for domestic needs goes after all for export. Of this more or less half of it goes to what we call the first payments area [socialist countries], with the same amount going to the second payments area [capitalist countries].

In trade with the ruble zone, what we call paced prices are used, prices which do not reflect current changes on the international markets, prices which are lower than world prices and are the result of a certain system. In the same way the prices on the raw materials which Poland imports from the CEMA countries are also lower. It is the opinion of specialists of the Planning Commission of the Ministry of Chemical and Light Industry that this is a profitable transaction.

The situation in trade with the dollar area is different. In recent times the world price has fluctuated around 130 dollars per ton of sulfur. The contract prices agreed to with individual customers, however, could be somewhat different from this. These differences stem from the specific nature of some of our trade agreements. From its sulfur exports Poland obtains not only free-exchange currency but also raw materials and partly-finished products. The profitability of these transactions should

actually be analyzed separately, but some of them are obscured as "commercial secrets." Thus it is not possible here to assess precisely the profitability of all export. We must simply trust the experts, who say that today it pays us to sell sulfur, there is a market for it, there are willing customers, and the economy weighed down as it is in a crisis needs free foreign exchange as much as products of a supply nature.

But what would happen if suddenly sulfur production took a drastic turn downward? The forecast for the next few years calls for a slight increase in domestic demand, one on the order of from 100,000 to 200,000. We need hardly argue to any great length that this demand must be met in full. We must not cut the economy, which is to pull itself out of a crisis, off from a flow of such an important raw material as sulfur. The decline in extraction can only mean a reduction in exports.

Exports to the first payment area are guarded with long-term agreements, so they will not be held up to this area first of all. A recession in the sulfur industry will have a painful impact on exports to the dollar area and will most likely slow up the influx of free foreign exchange. The expert reports drafted both at the chemical industry ministry and at the Planning Commission show that 1990 will see a decline in exports of about a million tons, which means more than half of today's exports to the second payments area [capitalist countries]. Can a country which is up to its ears in debt and struggling with a shortage of free foreign exchange to make purchases necessary to maintain current production afford this?

Or Invest?

It turns out that the answer to this question is quite simple and obvious for those people charged with making investment decisions. For example, in the first version of the three-year plan there is no question of a new sulfur mine. The Planning Commission does not exclude the possibility that such a proposal will appear in the next version.

The passage of a decision to construct a new sulfur mine, according to the specialists would mean that development concept and not some other. It would be tantamount to saying that in the immediate future the chemical industry is based on the extraction and export of raw materials and not on their processing or trade with highly-processed, high-grade products like drugs.

On the other hand, this latter idea, although more ambitious and seemingly more attractive, does not turn out to be realistic, given the current economic situation and the chronic shortage of free foreign exchange, the very limited technical possibilities of the industry, and the lack of experience in trading in pharmaceutical products. But the international market is demanding. We need time to make the contacts and attract the customers. Meanwhile our economy needs export income right away.

Planning Commission experts assure us that despite everything the proposal to build a new mine has a great chance of being carried out. The specialists from the ministry of chemical industry, on the other hand, are afraid that delays in the investment decision will mean the economy will run the risk of great free foreign-exchange losses even by 1988. Hence, construction should begin on a mine next year, particularly since an accompanying investment must also be made, a thermal electric plant.

Two competing locations are being discussed at the Planning Commission. One is Basznia, with deposits along the Soviet border, near one of our major customers. The other is in the locality of Osiek, in the Tarnobrzeg Basin, where the Siarkopol enterprise, the potential investor, is already located. Nobody at the ministry is pushing the Basznia project. Osiek cannot be overlooked. There is no competition, because of the possibility of combining the power and mining investments. It is a question of expanding the Polaniec electric power plant. Using the so-called associated system, if Polaniec were adapted to the production of thermal power for the future mine, it would be possible to avoid building a thermal electric plant in Osiek. This would mean savings running into the billions, and it would reduce the time it takes to construct the installation. Although from the viewpoint of general economic benefits, nothing can be objected to in the proposal, the power-industry ministry has been against it up until now. Here ministry interests are definitely in conflict.

The chemistry industry people and the planners agree on one thing. Over the next decade sulfur production should not exceed 5 million tons per year. Why? As we know, domestic needs are relatively stable. Exports to the first payments area [socialist countries], likewise. As for exchange with free foreign exchange countries, it is likely that as the result of various trends, it will not be possible to increase exports beyond the current level.

So long as the demand for sulfur is relatively high, prices will rise, but we must not forget that the raw materials market situation changes every few years or every decade or so. Over the past 20 years sulfur prices have fallen apart twice. In the industrialized countries sulfur began to be produced in the process of purifying natural gas, and this increased the supply on the world market. Now sulfur is increasingly coming to be obtained from sulfur-bearing crude oil. In the future we should anticipate a further rise in sulfur production as the result of the purification of chimney gas. Alongside the economic benefits here environmental protection considerations are also coming into play. In our country this sort of sulfur production is marginal, 30,000 tons per year, but it is significant in the FRG (half a million tons) and predominant in Japan (1.6 million tons).

All these factors are probably sufficient to justify the concept of moderate development of sulfur production and export, but this concept

at the very least requires new investments that are by no means small. The arguments of advocates of the new mine call for imagination, but surely those people are right who would like to see the effects of the operation of the future mine when free foreign-exchange exports are drastically reduced. Nonetheless, the planners' balance-sheet should very carefully compare the necessary outlays with the effects anticipated to avoid any error this time. The Machow example should serve as a warning.

10790

GSO: 2600/121

STABILIZED POWER SITUATION REPORTED

Electric Power Conservation, Supply

Warsaw TRYBUNA LUDU in Polish 8 Nov 82 p 5

/Article by Z. Swiderski/

/Text/ Fall and winter are especially hard for the power industry. Last year in the fall and winter, electric power in the Warsaw voivodship was very often out because of a lack of energy. This season there have been no outages. Electric power is functioning well and the situation has stabilized, but can this last forever?

From radio communiques it is known that power-supply level 10 has been in effect for a long time. For the time being there is enough electric power. When power-supply level 19 is reached, then limitations will begin on energy usage.

The Central District Power Plant personnel stated that they do not plan any outages like those that occurred last season. However, the principle of a sensible management of energy dominates the scene.

More Secure After Twilight

Up to the present, energy was used primarily for lighting the cities. In Warsaw at twilight, 70 percent of the street lamps were burning. The illuminating lights in many public places were turned off. Parking lots and parks were dark.

In Warsaw voivodship there was also very conservative lighting on the streets, squares and other public places. During the past month, only 40 percent of the city's street lamps were lit.

Lighting of Warsaw and Warsaw voivodship was changed on 25 October. Lighting in the city will be complete with only a few exceptions. Better lighting of parking lots and walking lanes in parks are planned; e.g., Saski Garden, Skaryszewski Park and the Zoological Garden. The only exceptions will be neon signs except for those used for information.

As a result of this action, Warsaw will have about 30 percent more lights than before. But of course, not immediately. After such a long period without lighting on the streets, reactivation will cause some problems.

The automatic devices that control the street lamps require special care. There are in Warsaw approximately 3,000 automatic timers and photoelectric cells. The timers have to be set according to the operating schedule--and especially at twilight. The dim-light relays very often break down in the photoelectric cells. It is enough for them to be a little dusty and the street lamps will come on at the wrong time. Approximately 90 percent of all street lighting in Warsaw is automatic.

One of the reasons there will be more lighting in Warsaw voivodship is a request from the militia to the effect that most automotive accidents have occurred during the evening and night because of no lighting. After twilight there will be 50 percent more lights now than in October, but lighting will be in accordance with energy conservation.

Optimistic Prognosis

Jan Tylutki, director of the Central District Power Plant, stated that for now there is enough electric power and that the electric power plants are working well. The situation can be made worse only if there is suddenly reduced megawattage in the country due to a very cold winter with large dips in the temperature. But Warsaw will be okay in such a situation because the local electric power plants can supply up to 50 percent of the needs of the urban centers.

Power outages in Warsaw will take place only if all other possibilities for saving energy are exhausted: in lighting, industry or communications. In such a crisis situation, electric energy will be turned off in special areas of the city (Warsaw is divided into 10 sectors) for one hour with the exception of the central sector and water-supply systems, hospitals or areas that play an important role in the functioning of urban life.

So as to avoid cases like people stranded in elevators, a system has been worked out to warn people before electric power is turned off in a given area of the city. There will be special radio and television communiques, and after these the lights will go out for a few seconds and then for longer periods.

But according to the statements by director Zygmunt Lojszczyk and chief of the power control center Zbigniew Wasilewski, such a drastic situation is not anticipated. There has been steady progress in the power industry in the past few months. Failures in the installations are rare and there are enough fuel and reserves for the winter. Power generating units also have been added to power plants to meet the growing need for energy.

Reduced Power Failure Rate

Warsaw TRYBUNA LUDU in Polish 26 Nov 82 pp 1, 5

/Text/ On Thursday a conference on the current and future situation in the area of energy fuel took place at the ministry of mining and power industry. Czeslaw Piotrowski, division general, served as chairman. Also participating at the conference were representatives from several ministries and the largest producers and consumers of energy.

During the last 10 months of the year, the failure rate among electric installations declined by 50 percent and power outages resulting from failures by 30 percent. This was achieved thanks to the power plants' work forces working under very difficult conditions. During the peak period--December 1982-January 1983--the country's energy power will be 19,200 megawatts, but this does not mean that the lights will not go out on certain days.

The electric plants have a very good supply of coal, but there is not enough furnace oil. It is urgent then that the delivery of furnace oil take place before the heavy frost arrives (i.e., the oil-fired units of Patnow II, which has a capacity of 400 megawatts).

Renovations have been successful this year, achieving 20,516 megawatts. Through 23 November, there have been completed the planned renovations of installations having the capacity of 18,664 megawatts. Through the end of November, 98.5 percent of the planned renovations will have been completed.

The very high and stable level of coal production during the workweek and Saturdays will contribute to a 1982 coal production of 189 million tons.

A considerably worse situation exists with coke. Production this year will be 18.2 million tons, of which 16.9 million tons will be used for smelting. This is 700,000 fewer tons than last year.

There is not much optimism as regards the situation with fuel oil. Petroleum refining in the country's refineries will be 13.2 million tons.

In accordance with anticipated shortages of energy during periods of very low temperatures, the government has established a wide range of tasks guaranteeing a reduction of energy usage in unnecessary areas.

9807

CSO: 2600/105

LONG-TERM TRENDS IN EXPORTS, IMPORTS

Zagreb START in Serbo-Croatian 9 Oct 82 No 358 pp 10-12

/Article by Mirjana Popovic: "Why We Import"/

/Text/ In 1976 we bought 74.3 percent of equipment imported on credit. Last year, we paid cash for more than one out of every two machines imported; and in the first 7 months of this year, in a period of the greatest import restrictions and hard currency nonconvertibility, we have bought without credit discounts 55.3 percent of the equipment purchased from the convertible region. Our exports, moreover, have dropped. From 1971 to 1975 the rate of nominal export growth amounted to 19.4 percent, from 1976 to 1980, 17.1 percent and continues to fall. Is it possible to reverse this trend?

Few are aware that over the last decade we imported mainly from the West equipment valued at more than 30 billion dollars (calculated to today's prices). For purposes of comparison: in order to raise such an amount of hard currency, the entire Yugoslav lumber industry would have to sell to the world for a full 30 years our oak, beech and all other types of wood; lumber building materials and furniture in last year's quantities (when we tried to sell as much as possible to aid our trade imbalance).

Few are aware that presently, despite all the resolutions and proclamations, more than 25,000 new construction projects are underway in our country. The value of each of the 360 largest of these projects surpasses 500 million dinars, and the total estimated value of all investment amounts to 1,373 billion dinars (which is, again, only for purposes of comparison, one percent more than the gross product of the public sector in 1980 or two-thirds of the gross product of the public sector in 1981, measured in present prices).

Many, probably, are aware that Yugoslavia's share in the supply and demand of the world market has declined (it has fallen from 0.5 a decade ago to 0.4 percent). But, few know that in the last 20 years, exports from our country have decreased and the rate of their growth continues to decline.

Let's recall some facts: every year that we import expensive, mainly the most modern equipment, we pay millions of dollars; and the more intensively we build (truly, somewhat more slowly now) new objects, the more we decrease relatively the amount of goods we sell on the world market - which points to the main focus of our balance of payments difficulties. It also points to the basic reason why our factories stand idle, because they have nothing to produce, and goods are all the more difficult to obtain in shops in our country and across the border.

It must be said that the purchase of new machinery, the modernization of production and even new construction are necessary for the development of every economy. Especially, our economy because we are a country which is intensively developing its economy, which wants to make up for what it lacks by steps 7 miles long and to arrive among the developed countries. Since it would take too long and cost too much to develop the technology ourselves (assuming we could), we can, of course, purchase much of it from the technologically advanced countries. There is nothing wrong with this. But, we must ask ourselves what are we buying with hard currency so difficult to acquire and where does that take us?

The year 1979 shocked analysts because equipment was imported for a whopping 3,572 million dollars. This fact is usually born in connection with economic measures aimed at reviving industrial production which were undertaken in the second half of 1976 (equipment worth 1,759 million dollars was imported then). The measures were obviously fruitful: intensified investment activity was the tested prescription for the reviving of all economic and public affairs. But, in the realm of imports and exports, the prescribed medicine did not yield pleasing results. In 1976 Yugoslav industry sold the world only enough equipment of its own manufacture to be able to pay for 47 percent of the equipment imported from foreign producers. In 1979 we could cover by equipment exports less than a third of their purchase costs. Hence, in only a few years, we had doubled our imports of equipment (from 1758 to 3,572 million dollars) and increased the exports of equipment by scarcely 40 percent (from 826 million dollars in 1967 to 1,156 million dollars in 1979).

One might wonder whether such imports of equipment has contributed to the increase of exports of some other goods. But here are the facts: in the 5 years from 1961 to 1965 exports grew at an average rate of 9.7 percent; from 1966 to 1970 the rate of growth amounted to 5.8 percent; in the next 5 years, it fell to 4.9 percent. From 1976 to 1980, hence, in the period which most interests us, the growth rate of real exports amounted to only 4.7 percent...Obviously, the amount of goods placed by us on the world market has relatively lessened...We are losing our zest. In the last 5 year period even the growth rate of nominal exports (when we calculate altogether how much we received for exported goods, and that includes increased exports because of higher prices, and a smaller amount of goods) has constantly decreased. This means not only are we slowing the increase of the amount of exports, but are also lessening the growth of the hard currency surplus earned by exports (from 1971 to 1975 the growth rate of nominal exports amounted to 19.4 percent and from 1976 to 1980, 17.1 percent).

Especially disconcerting is that we buy more than 80 percent of our equipment from the developed countries of the West, from trading partners with whom we have the largest imbalance and the slowest growth of exports. In 1976 we imported from the convertible currency area equipment for 1,506 billion dollars (the trade deficit that year amounted to 2 million dollars), while 3 years later in 1979 we paid 3,163 billion dollars for equipment from the West (the trade deficit from the convertible region amounted to 5,540 billion dollars). And what about exports to the convertible area? Not only did the value of our total exports to the developed countries of the West in the 5 year period grow more slowly than the growth of exports to the clearinghouse area and so slowed down the overall growth of exports, but the value of our exports to the convertible region grew more slowly than even the growth of the average export price. This means that the real volume of our exports to the developed countries in 1980 was smaller than 7 years ago. We need only add that it was the main industries which decreased or minimally increased exports during this period: ferrous metallurgy, nonferrous metals, ship building, the production of flax and textiles, and others.

It is interesting to take a detailed look at the kinds of equipment we bought during the last years. The table presents all the types of machinery imported (except for electric) for the entire period under consideration. Of 1.759 billion dollars spent in 1976 for the importation of equipment, 1.050 billion was for the purchase of various types of non-electric machinery, 199 million for electric machinery and motors, 216 million for transport-related equipment and the rest for various investment goods. In 1979 we spent 2.359 billion dollars to import machinery: 493 million for electric machinery and motors, 338 million for transport-related equipment. The ratios, hence, have remained, in principle, the same. About 60 percent of equipment imports in all these years, including this one, is for machinery (except electric). Electric motors and machinery comprise about 11 percent of equipment imports. Certain changes have appeared only for the importation of transportation-related equipment and other investment goods. The share of imported transportation-related equipment increased from 12.3 percent in 1976 to 22 percent in the first 7 months of 1982. At the same time, the share of other investment goods decreased, which were intended for the investment maintenance of present projects. This amounted to 15.7 percent in 1976 and only 8.9 percent in the last months of this year.

Still another fact, with some exceptions, characteristic for equipment imports in these 5-6 years: more than 70 percent of the equipment bought abroad was earmarked for the manufacture and processing of goods; 17 to 26 percent were for service activity; 4 to 7 percent were for nonproductive activity. Five years ago most equipment imports were for energy and metallurgy, then for metal processing complexes, agroindustry, the chemical and lumber industries. In the last years the share of energy, metallurgy and other such industries using raw materials (except chemical) has decreased. The share of the producers of metal complexes, however, has risen.

The way we have imported equipment for several years is constricting us in many ways. The first and most banal: we are paying cash for a larger and larger part of equipment imports. It is as if we have money in abundance. In

1976 we bought 74.3 percent of equipment imports on credit. Last year, however, more than one out of two imports were purchased with cash, and in the first 7 months of this year, in a period of the greatest import restrictions and hard currency nonconvertibility, 55.3 percent were purchased with cash, and without credit discounts. That means we have earmarked an even greater part of what little hard currency we have for equipment. This is despite the fact that our factories run at a third and, in the best of cases, a half of their capacities - mostly because of the lack of imported reproductive and raw materials.

Since we barely have enough convertible currency to service our debt, we must seek new loans abroad to finance essential imports. These include necessary energy supplies, some popular consumer goods, reproduction materials and a large share of the equipment now imported (or, if we pay for the equipment, then other necessary imports). These conditions surely are not as favorable as those which producers would have to give us if, naturally, they want to sell their equipment.

Experience, to our detriment, has taught that foreign producers, as a rule, rub their hands with glee when they do business with us. We are never overly concerned that we are importing the most essential: from lubricating oil to spare parts, from raw materials which will be processed to packaging systems for finished products.

For years we have carried out our system which is "included in the international division of labor" just as we pleased. And usually we most enjoyed buying what was foreign. We processed goods and we finished them, but often we only packaged goods (under the excuse that we were finishing them) and then sold them to the domestic consumer. Along with this, we have attentively ensured the well-being of the "processing" industry by customs and other protective systems. If earlier someone had said we were developing autarchically that we were braking while driving uphill, that our interest in exports was flagging, we probably would have been insulted.

However, it must be remembered: the problem is not that we are importing a lot of machinery or a lot of reproductive material or even a lot of consumer goods. We do not import much. We import proportionally little. The problem lies in the fact that we buy and consume but do not sell. We import, we eat, but we do not export. We do not export enough to satisfy our growing demand, our standard, our irrationality. These facts bespeak our manner of consumption and dollar accumulation: in a year when we scarcely exported to the convertible market goods worth a little more than 6 billion dollars, we had to buy reproductive material (under conditions of reduced imports) for more than 8 billion dollars. Despite legal and custom barriers, we imported equipment for more than 2 billion dollars (not counting equipment held at custom stations which on December 31, 1981 amounted to 681 million dollars). When all this is added up, and when we include the minimal importation of consumer goods, we come up with the fact that in 1981 for every 2 dollars worth of goods bought from the West, we sold them in return - one.

No intelligent individual has anything against the building of roads or power plants, nor against building swimming pools or hospitals or factories ... All of these are necessary. But certain questions immediately arise. Are we presently rich enough to afford these? Is it wise to sacrifice simple reproduction in our present productive capacity because of new, often unproductive investment? When we construct new productive capacity, do we advance or are we dragged back?

Let's take for example, the appearance of politically long propagated and prized factories labelled as "import substitutes". Few opposed these investments because they promised to free us from imports. The funding and licenses were approved without problem in order to be rid of our dependence on imports and not to have to pay hard currency (of which, by the way, we have little). And yet, we simultaneously committed at least three mistakes. First: we spent what little dinar-hard currency and merchandise funds we had; second: we had to seek additional loans; third: we added to the little wall of autarchic obstruction in our (expensive, underproductive) little freedom one little stone, one more factory. And, it seems almost as if by rule that our merchandise would not enter in the world market. Besides, it appeared threatened by that market.

These "substitute" constructions most adroitly penetrated the barriers placed in forms of equipment imports and new investment. So, not only, have we returned to where we were yesterday (expensive, closed and poor), but in a time of scarce money (both dollars and dinars), in a time of shortages of all goods - it brakes the development of production which all things being equal, could enter the world market. Because regardless of the scarcity of hard currency (more correctly, because of it) we must invest every dinar-dollar to produce the greatest possible effect. By this is meant the export effect (either indirectly or directly), i.e. production which can compete in the developed countries.

According to some estimates, more than 40 percent of industrial equipment is automated and 75 percent semi-automatic or automatic. On one hand, high priced equipment rusts, on the other, pushing for development, we purchase new equipment, which will also rust or, in order to satisfy domestic appetite must be fed thousands and millions of dollars.

Why is this so? Without presuming to answer this question fully, it is possible to say simply that we have not completely thought out the system of self-management decisionmaking in the demands of large investments (about widened reproduction in general). Such undertakings are directed on the basis of developmental plans "thrown into" practice instead of growing out of them. At the same time, the conception of autarchic development lives intensively in practice and the minds of many ... While on one hand we claim that there is no or only a little wasted investment upon which associated labor has decided, on the other hand, we in all seriousness lament the fact that "small" investment objects (with an estimated value of up to 50 million dinars) amount to 85 percent of total investment. It has been forgotten that it is really these investments, about which associated labor indirectly decides, which contribute to reconstruction and modernization, and have the

least amount of waste and irrationality. The problem, of course, is somewhere else, for example, that 1.4 percent of the total number of projects to which falls more than 54 percent of the total value of all investment.

Obviously, the question of equipment imports does not deal with the good or evil intentions of importers or about their intelligence, but with something much more important. It deals with how we plan, how we decide, how we perform self-management ... Politicians have given their judgment on that. Now, it is the economists' turn, because the purchase of new machinery and the total investment picture have undoubtedly a powerful economic justification and logic. Sociologists also have something to say because social relations are most drastically portrayed in the investment system. But, even psychologists - because behind many investment schemes lurk motives which have only a conditional connection to economics and sociology.

12217

CSO: 2800/73

TWO VARIATIONS OF FOOD PRODUCTION PROGRAM DISCUSSED

Belgrade PRIVREDNI PREGLED in Serbo-Croatian 13-15 Nov 82 p 6

[Text] The Draft Resolution shows a planned growth rate of 2.5 percent for overall agricultural production while the Federal Committee for Agriculture is proposing a growth rate of 4 percent. In the first case the foreign trade balance would be negative and in the second case it would be positive--what should be done?

Agricultural production will grow during 1983 in accord with the decisions contained in the Social Agreement on achieving the policy for developing the agroindustrial complex established by the 1981-1985 Yugoslav Social Plan.

The Draft Resolution envisages a growth rate amounting to 2.5 percent for overall agricultural production. The Federal Committee for Agriculture, however, has proposed that agricultural production grow at a rate of 4 percent. The Program stresses, in both the first and second cases, that agricultural and food products exports, in particular, must be stimulated in accordance with a program of exports which will be enacted on time.

According to the Draft Resolution, the foreign trade balance resulting from the exchange of agricultural and food products would show a 52 million dollar deficit (exports 1.36 billion dollars and imports 1.41 billion dollars). In its version, the Federal Committee for Agriculture is planning a positive foreign trade balance of 128 million dollars (exports 1.5 billion dollars and imports 1.37 billion dollars). The version anticipating an increase in agricultural production of 2.5 percent takes into account that more oil and sugar will be imported because of insufficient [domestic] production. The value of [agricultural] inputs would remain the same in this case because the required volumes of fertilizer and preparations for disease and pest control is the same in both versions.

Only Seed Is in Sufficient Supply

In order to achieve the planned volume of agricultural production, the corresponding factors for success must, of course, be provided. For the

most important agricultural crops, the seed requirements for the fall 1982 and spring 1983 plantings will be supplied by domestic production. Most of the required quantities of sugar beet, vegetable and fodder crop seeds also will be supplied from domestic production. To enable the importation of the required quantities of those seeds which are in short supply, the Yugoslav Community of Interest for Foreign Economic Relations and the Self-Management Interest Community of the Republics and Provinces should acquire the necessary foreign currency in time. To increase interest among private producers to use high-quality seed, the Program stresses the need to expand the practice of exchanging commercial wheat for seed wheat.

Based upon stocks of mineral fertilizer, and in accordance with the self-management agreement on agricultural production and the uniform supply of the Yugoslav market with this production during the 1982/83 economic year, it will be necessary to acquire 3,238,000 tons of fertilizer. The mineral fertilizer industry can manufacture the 1,367,000 tons necessary for the fall planting, but not in the required proportions of individual chemicals, especially the amount of nitrogen fertilizers which will be necessary. A total of 1,871,000 tons will be required for the spring planting. It will be possible, however, to manufacture only 1,671,000 tons, or 200,000 tons less than needed. This shortfall will have to be imported, requiring 25 million dollars.

A similar situation exists concerning supplies of pesticides and herbicides since domestic industry can provide only around 60,000 tons, an insufficient amount. As far as farm machinery is concerned, the Program stresses that we have a sufficient number of tractors and other agricultural machines for both the fall and spring plantings. The fundamental problem is a lack of spare parts and consequently, the problem must be resolved in accordance with Article 13 of the Social Agreement on development of the agroindustrial complex for the 1981-1985 period.

Overcoming [Regional] Encapsulation

In the area of cattle production, 2,842,000 tons of corn and about 200,000 tons of other grains will have to be bought up [from farmers] to cover current needs for cattle feed and about 1 million tons must be bought up for reserve. Since production of high-protein cattle feed is insufficient, most is being imported, and, as quickly as possible, measures must be enacted which will increase the production of meat-based meal and fodder meal. Nor will the planned production of soy beans satisfy cattle industry requirements. Thus, 614,000 tons of high-protein cattle feed must be imported requiring, however, about 200 million dollars.

Hay production, too, is insufficient. In 1983 its production should be stimulated and increased by expanding the area under its cultivation, establishing artificial meadows and by providing sufficient quantities of mineral fertilizers.

In addition to the material prerequisites, it is also necessary to ensure that other pre-conditions are realized. First of all, lasting relationships

in linking and associating labor and resources must be established between those responsible for primary production, processing, transportation and supply. In this way we could overcome the various forms of closed markets. Toward this same goal, it is necessary to conclude self-management agreements and to contract for the production and delivery of agricultural products in line with material balances. It is also important to assure the necessary volume of commodity reserves and to secure early enough, the funds necessary to do this.

In order to achieve the planned level of exports of agricultural and food products, the Program also stresses the need to contract for these exports in a timely manner, to create a lasting economic interest in increasing exports, to establish rights to foreign currency compensation for those Organizations of Associated Labor whose exporting activities would be restricted or forbidden, as well as to ensure increased production as a substitute for imports.

A 12 Percent Increase in Prices Is Not Enough

It is essential that 37 billion dinars be secured for investment in developing basic agricultural and food production for high-priority purposes. The banks will provide 14 billion dinars, or 40 percent of the total planned amount. Interest rates on the credits for these funds will range from 9 to 14 percent with repayment due in 10 years. The Program insists on an interest rate of 9 percent which, if accepted, will require 400 million dinars in interest payments.

If production were to grow at a rate of 2.5 percent, funds for selective crediting of production in the social sector and for reserves would amount to 229 billion dinars, of which 118 billion dinars would be provided by primary issue. The second version would require that 247 billion dinars be earmarked for these purposes, 125 billion coming from primary issue. The Program supports a plan whereby the banks would be allowed to exceed the regulated limits for these purposes provided that they reduce funding in other areas.

The Program stresses that during the coming year, it will be necessary to increase producer and sale prices on basic agricultural products and to eliminate the existing disparities. In both versions, price increases should amount to 20 percent, which is considered requisite for achievement of the planned increase in production. Price increases of [only] 12 percent, as proposed by the Federal Association for Prices, would bring into question the planned production increases in both the first and second cases. It is also considered essential to pay a premium on wheat and milk and to subsidize purchases of seed and artificial fertilizer.

Land policy must contribute to the better use of cultivable areas. In this sense, it is being stressed that the Executive Councils of the Republics and Provinces must stimulate the use of uncultivated lands through tax policy and other measures. It is considered necessary to increase the amount of cultivated land in the socialized sector by 70 percent. This will require corresponding levels of resources and more favorable credit terms. In this regard, it is anticipated that the banks will conclude a self-management agreement on credit guidelines and conditions.

The Two Versions of the Food Production Program Compared (in thousand tons)

Product	Production program of basic agricul- tural products by growth rate		Difference between growth rates (2 - 3)	Consumption by coordinated balances	Deficit or surplus	
	4%	2.5%			(5 - 2)	(5 - 3)
Wheat	6,000	5,500	500	5,887	-	-387
Corn	10,696	10,000	696	9,969	+727	+31
Sugar beets	7,328	7,200	626[*]	-	-	-
Sugar	978	830	148	874	+104	-44
Sunflower seed	369	360	9	-	-	-
Soy beans	291	250	41	-	-	-
Rape seed	111	100	11	-	-	-
Edible oil	242	230	13[*]	314	-72	-84
Rice	27	25	2	71.7	-44.7	-46.2
Tobacco	75	70	5	69.2	+5.8	+0.8
Meat--Total	1,378	1,340	38	1,236	+142	+104
Beef	360	350	10	300	+60	+50
Pork	550	545	5	515	+35	+30
Lamb	62	362[*]	0	50	+12	+12
Poultry	310	295	15	295	+15	-
Other	96	88	8	76	+20	+12
Milk (mil. lit.)	4,735	4,650	85	5,002	-267	-352
Eggs (mil.)	4,836	4,800	36	4,736	+100	+64

[*] [as given]

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END